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John Shaw

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COVER: Gray Squirrel, by John Shaw, King George

Editorial

GUEST EDITORIAL

While it is much too early to celebrate a victory, it becomes more obvious with the passing of each day that, far from blasting a bull's eye, "The Guns of Autumn" actually backfired! In fact, it just may have ripped its breeches as well!!

From every corner of the nation, dedicated but heretofore placid sportspeople who would scarcely stand up to be counted, not only were prodded to their feet, they were goaded into action.

Everyone, from the President of the United States right down to the clerk in your local sporting goods store was forced to face up to the ugly truth. There are "slob" hunters and "slob" anglers, even as there are "slob" presidents.

It took a billion-dollar Watergate episode to expose the latter. The former were exposed for free. Trouble is, as almost everyone knows, the "slobs" in our ranks are few and far between, a vast, vast minority. But, it took this expose to convince everyone that action was needed and needed badly.

A few opportunists took advantage of the nationally televised expose to feather their own nests, to whip up the cauldrons of hate and stir the pot for contributions to fight the system. Without mentioning names, it caused a tingle in the ticker when, last month, we learned on good authority that the most despised and vociferous of the lot had been fired from his position of prominence and disrobed of his austensible cloak of respectability. Whether that proves to be true or false is of little moment.

It is a verified fact that some 20 million sportspeople turned out for the 4th annual National Hunting & Fishing Day. More came this year when the theme "Making a Good Thing Better" marked the 5th annual celebration of the Day recognized by Presidential proclamation in all 50 states and endorsed by more than 40 of the Nation's leading conservation groups.

Never before were all fronts of firearms-for-sport ownership so well united behind a common cause —

wipe out the opposition by wiping out the "slobs" from both within and without. We understand it took 70,000 letters to remove the Friend's of Animals' voice. But with some 20 million people interested enough to take part in National Hunting & Fishing Day, that's no step for a stepper.

Obviously the promise of one Presidential candidate, not even the removal of one man, in fact, not even the presence of 20 million people spell victory. Efforts have been made to prevent hunting of deer in New Jersey, to ban dove seasons in Ohio, to universally bar leg-hold traps, to remove some species from the Migratory Waterfowl Act and many, many other local and national efforts to erode the edges while engineering total eradication of both hunting and the private ownership of firearms. Even sports fishing could be up for grabs.

It is not sufficient that Michigan United Conservation Clubs continue its \$300-million class-action suit against CBS filed on behalf of all Michigan hunters, charging that the network conspired to libel and slander hunters.

It is not sufficient that Game Coin and a good many other outdoor-oriented organizations have solicited financial help for their Defense Funds.

All of these efforts, commendable as they are, are insufficient. The sufficiency comes only when we eliminate the "slobs" within and make certain that the courts penalize, not the ownership of firearms, but those who use them in the commission of crime. And, not only penalize them adequately, do so speedily.

No victory is not in sight, but a lot of skirmishes have been won. And, best of all, the adversary has united the efforts on our side more than ever before. In union, there is strength. So, what are you doing to help our cause?

Wally Taber

Condensed from Outdoors Unlimited. The official voice of the Outdoor Writers Association of America

Letters

IT DOESN'T PAY TO ADVERTISE

I feel you have printed an article which is not consistent with your pledge of "conservation of Virginia's Wildlife and Related Natural Resources."

The article on *Ginseng* will whet the appetite to hunt 'sang' rather than curb the continuing depletion of the resource. The editor should have stressed that the plant is a threatened or endangered species and should be protected, since the author did not.

Larry Doyle
Murray, Kentucky

TEA TOTALER

I should like to submit a word of caution regarding an article on sassafras in the July issue.

The August issue of the *Journal of the American Medical Association* contains an article by A. B. Segelman and others, entitled "Sassafras and Herb Tea Potential Health Hazards." In this article, Dr. Segelman reports that safrole, a derivative of the sassafras root, has been shown to be a hepatocarcinogen and has been banned by the FDA for use in food products. In their research they noted that sassafras tea fed to mice produced ataxia, ptosis, and hypersensitivity to touch.

Readers of the *Virginia Wildlife* should be cautioned to keep these findings in mind when they consider the use of sassafras tea or sassafras root as a flavoring.

John F. Frantz, M.D.
Newport News

WE GOOFED!

In the October 1976 issue's "In Nature's Garden" article entitled *Insectivorous Plants* by Elizabeth Murray, we mislabeled a drawing by Lucile Walton. The drawing, which should have been labeled "Sundew" was incorrectly named. Our apologies to Mrs. Murray and Miss Walton and our readers.

How Safe is Hunting?

By BILL ANDERSON
Haysi

His heart pounding fast, the young man in hunting attire raised his autoloading shotgun in anticipation at the sound of snapping brush. Then there was a splotch of brown moving through the heavily interlaced laurel jungle. It was a deer. It had to be a deer!

A shotgun blast interrupted the early morning stillness and reverberated from the nearby mountain-side. A spray of buckshot ripped through the fog-shrouded forest, tearing at twigs and leaves as it bullied it's way through the yielding brush. Along with the echo of the shot came a shrill cry of pain that sounded like no forest creature. He had shot another hunter!

This scene, or a similar one, took place seventy-seven times in Virginia during the last fiscal year (July 1, 1975 — June 30, 1976). The incident above describes the most usual accident-young male hunter-shotgun-deer hunting-victim mistaken for game. Thirteen of the seventy-seven accidents were fatal. Almost all were preventable.

The root causes of most hunting accidents are carelessness, indifference, inexperience and failure to observe hunting laws and rules of safety. Even people with physical defects can hunt safely if their defects are recognized and allowed for. Perhaps all the causes of accidents could be lumped together under "attitude."



Whenever crossing a fence or other obstacle, the gun should be unloaded and — with the action open — pushed under or through the barrier. This will permit the hunter use of both hands, and he can cross the obstacle in a safe manner.

If each and every hunter religiously followed the ten commandments of firearm safety, we would practically put an end to all firearms-related accidents.

The statistics tell the story. As a group, Virginia hunters are safe. During the 1975-76 fiscal year about one-half-million hunters were afield in the state. One hundred, thirty were involved in the seventy-seven accidents. If you hunted during that period, your chance of being involved in a shooting accident, as a shooter or victim, was about one in 4,327. These odds, of course, may be increased or lessened by several

factors, including your own conduct, hunting partners you choose, the game you hunt, and the area in which you hunt.

If you are a prudent and careful sportsman, the chance is remote that you will ever see a shooting accident, much less be involved in one. It is a pity we can't say as much for automobiles.

Let us examine some of the statistics involved with last year's hunter shooting incidents.

It may seem somewhat unfair to name the county that had the most accidents, or the type gun most involved, or the age group with the poorest record. One first needs to know ratios. For instance, if we say shotguns were involved in more accidents than any other type firearm, we need to know how many of the total guns used were shotguns. However, these figures are not available.

First, it is interesting to note that twenty-five of the seventy-seven injuries were self-inflicted. This is more than one-third of the total number of accidents. Some of the leading causes of these self-inflicted wounds are: shooter stumbled and fell; firearm fell from an insecure rest; and the hunter was removing his (loaded) firearm from or putting it into, a vehicle.

Albemarle County led the state with the highest number of accidents — a total of seven, none of which were fatal.

Foremost cause listed for all accidents that occurred was 'victim mistaken for game'. This is a big minus for both the shooter and victim. First, it is the obligation of any person firing a gun to definitely know, not just think he knows, what he is shooting at. It is better to miss shooting the trophy of a lifetime than to injure or kill a fellow outdoorsman.

Furthermore, it is the responsibility of any hunter to dress in such manner that he will not be mistaken for a game animal. One's hair should always be covered. Brown, tan, black, gray, or any other color that might resemble an animal's natural color should be avoided. All hunters should wear a bright color, preferably blaze orange. We noted that at least 32 of the shooting victims in Virginia last year wore no bright colors.

Why one should wear a bright color when hunting was driven home hard several years ago, while I was deer hunting. The day was overcast and dull, and to complicate matters, I was hunting in a deep hollow.

A slight movement in a laurel thicket caught my eye, and I strained to see what was there. Then I saw what appeared to be a shapeless black blob. I was in good bear country and, needless to say, my heart just about doubled its pace.

But look as I may, I couldn't see head nor tail of my bear. I tried my binoculars. No luck. Maybe it wasn't a bear. Then what the heck? Should I shoot? What if it went out the other side of the thicket? It was the chance of a lifetime for me. Shoot, shoot, my thoughts raced!

I sat down and crawled into my rifle sling. Yet, I held my fire. What if it wasn't a bear? I could only see color, not form. If it was a bear, what if I crippled it, not knowing at what part of it I was shooting? I didn't want a wounded game animal on my hands, especially a bear. On the other hand it could be a turkey. Then again there was a remote chance it was a person - even in that thick tangled mess. No way I would shoot. I had to know not only what I was shooting at, but where I was hitting my target.

I waited. Minutes crept by. About fifteen of them. It seemed like an eternity. Then my bear was moving, coming toward me. This was it!

A large, husky man, dressed in new blue denim from head to foot, stepped into the open seventy-five yards away. He wore a black beard and hair. He shouldered his shotgun and moved off through the woods without ever seeing me. I was somewhat shaken, not because I hadn't shot a bear, but because I had mistaken a fellow hunter for a game animal.

Second major cause of all shooting accidents was the victim being out of sight of the shooter. This happens when the hunter shoots through thick brush and is unable to see clearly what is beyond. Think before you shoot into that thicket or briar patch. What is on the other side? Where is your hunting partner? There may be other hunters present, unknown to you.

Hunting while foliage is heavy, which is often the case for varmint, early fall squirrels, or late spring turkey hunting, can be tricky. Shoot only when you know where your bullet or shot pattern will go after it passes your target. Don't shoot into dense vegetation or brush where there's a chance another person may be. This rule should apply to all kinds of hunting, at any time of the year. A high-powered rifle bullet may have a potential range of up to three miles. Often that rifle bullet will shoot through an animal. What's beyond your target? Where will the bullet go if you miss?

It should be noted at this point that deer hunting claims more victims than any other type hunting. Last year there were thirty-three accidents involving deer hunters. Turkey hunters had the second poorest score, with eleven shooting incidents, and squirrel hunters copped third place with nine accidents. Those who hunted bear, racoon and fox had the best score. They were involved in no shooting accidents.

One victim was under ten years old; three were over 60. The group with the highest accident record was in the 10-19 age bracket. As in years past, the shotgun was the firearm most involved. This is probably due to the large number of hunters who use shotguns. No archery accidents were reported.

Half of all accidents occurred at ten yards or less distance. In this we may have a moral. You are very likely to be shot by yourself or by a hunting com-

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The Southside's Meherrin

By SHELTON H. SHORT, III
Ashland

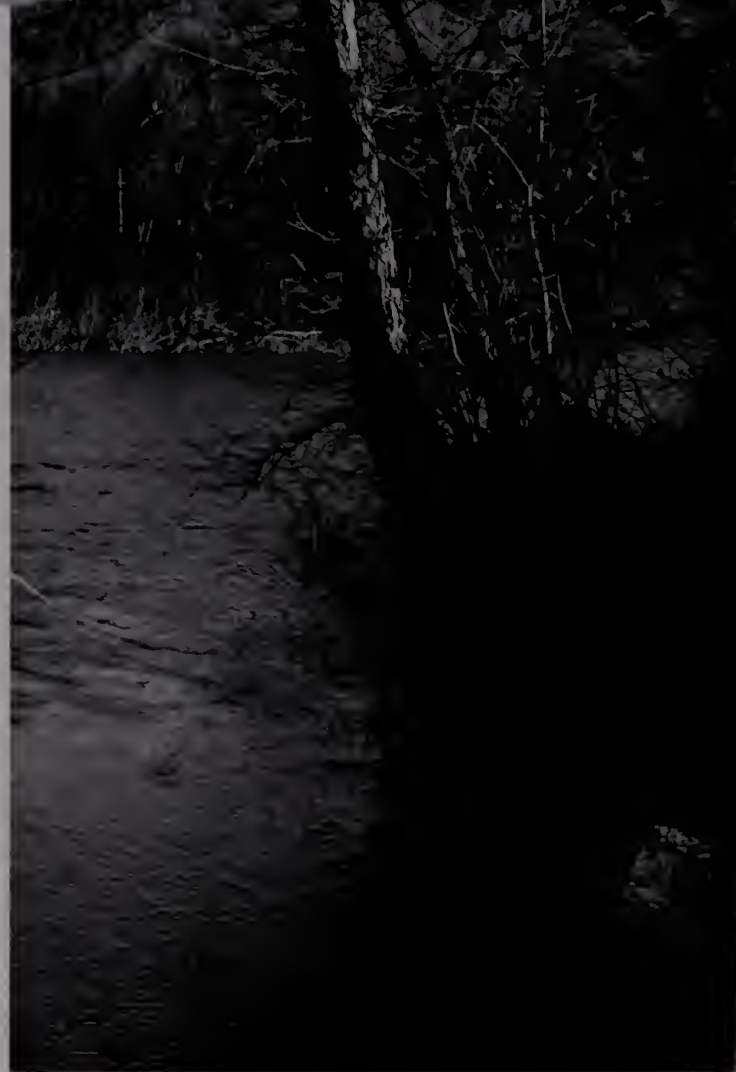
The Meherrin River has its splendor - spring or fall. For canoeists from Brunswick, Lunenburg, Mecklenburg and other nearby areas in Southside Virginia, it is a stream of beauty, regardless of season.

Mr. C. C. Wootton and I were four days in April canoeing the river from central Lunenburg almost to Emporia, and before that I had spent parts of several days walking along it from springs in Charlotte County near Fort Mitchell down until there was enough water to launch a canoe. In autumn we were joined by Mr. W. Howard Sizemore of Clarksville and South Hill for an expedition down a part of the current which could very probably be classified as much a mountain stream as a normal placid one of the Southside. We called this scenic section of fast moving current, rocks and high cliffs "the Breaks of the Meherrin." It began in Lunenburg county on the North Fork of the river at Wallace's Bridge, continued past the confluence of the North and South Rivers (the Middle River had already joined the South Fork) down to Saffold's Bridge near North View and about four miles upstream from Whittle's Mill. Much of South Hill's water supply comes from this unusually pure semimountain stream and it is this part of the river as well as parts of it in Brunswick which conceivably could be qualified as a State and National "Scenic River."

In the spring the streams flowing into the river are vigorous and often there are beautiful waterfalls from the banks and cliffs. The river rapids and waterfalls actually sing a melody. One can hear the rapids a hundred yards or so before approaching them and the Falls of Whittles Mill can be heard three or four miles downstream.

The trees in springtime are just beginning to bud and there are wildflowers galore. Dogwoods are in blossom and yellow-brown dogtooth violets abound. Natural purple violets, buttercuts, forget-me-nots, and bluebells too! The most beautiful of all are the wild azaleas; those red-white flowers are then in their glory. But the most exciting floral phenomena are the thousands and thousands of mountain laurel adorning those rocky banks.

In October the river is quieter, not as powerful, but equally as fast. We have a good aluminum canoe; a wooden one would probably break on the rocks. The autumn water, however, has a spirited and refreshing beauty. It is crystal clear. We can see the river bed



regardless of depth and it was lovely. The autumn leaves of red, gold, brown and green are clearly visible on the bottom. They seem to form various mosaics and sometimes are like a patched quilt of almost every color of the rainbow, designed by "Mother Nature." The rocks and pebbles along the bed are colorful and next time I will bring my Alaska gold-panning equipment along. I admit not to expect nuggets, but am willing to bet that there are considerable gold flakes in more than one place along the upper Meherrin.

It would be easy to continue to write about the wonders of the Meherrin. Instead allow me to ask you to consider seeing these wonders for yourself that "Mother Nature" has so bountifully bestowed; to us of Southside Virginia.



TUFTED TITMOUSE



BLUEJAY

Songbirds of Suburbia

By VINCENT J. LUCID

*Department of Fisheries and Wildlife Sciences
VPI & SU*

Residential areas are not ordinarily considered prime wildlife habitat. It is often felt that one must travel to less densely populated areas if he wishes to encounter a variety of wild creatures. This does not have to be the situation. It is true that some wildlife species are unable to exist in areas with a high degree of human habitation, and others are considered pests by some people while desirable to others; but many songbirds are very much at home in residential areas and quite compatible with the interests of the human inhabitants. A surprisingly long list of birds can be found in suburbia if the proper habitat is available.

Residential areas, like natural habitats, change their character with time. Frequently a new suburban development is built on formerly open, agricultural land or (like it or not) bulldozed clear of all native vegetation prior to construction. Landscape vegetation is planted and grows to maturity over a period of years. It is this ornamental vegetation - its kind, size, and arrangement - that determines to a very large extent the quality of the songbird habitat.

Each bird species has its own unique combination of means by which its basic needs are fulfilled - often referred to as its habitat-niche. The type of food it eats, the protective cover it needs, the kind of nest site it

prefers, and the need for a source of water combine to form a habitat-niche that is different from that of any other bird species. It follows that the residential area which provides the largest number of different habitat-niches will support the largest variety of birds. If these different niches are fairly evenly represented, the various bird species which fill them will be present in fairly equal proportions. A neighborhood with only a few habitat-niches will be populated by only a few kinds of birds. The species which are best adapted to the available habitat will be present in the largest numbers. In short, maximum diversity of habitat will produce a maximum diversity of songbirds. To improve the variety of birds on your house lot, consider the following recommendations for a diverse habitat.

The goal of maximum diversity of habitat (and birds) cannot be attained overnight; plants take time to grow. Make a careful evaluation of the kinds and sizes of landscape plants on your property now, and imagine what they will look like at maturity. Then you can choose the best kinds of additional ornamentals to plant, and decide where to plant them, to fill in the present and future voids in the songbird habitat of your yard. It is a good idea to draw a landscape plan on paper, instead of deciding on arrangements as you go along. The species of plants need not be decided upon in advance, but the size class, foliage type (deciduous or evergreen), and location should be predetermined to achieve the best results.

Large trees will take a long time to mature, so waste no time in getting them started. Even while young and small, valuable cover and nest sites will be provided. Stately evergreens such as white pine and white spruce reach heights of up to 100 feet, and provide nest sites, year-round cover, and cones that are choice foods of a number of birds, such as cardinals, chickadees, and the wintering evening grosbeaks and purple finches. The somewhat smaller red cedar and American holly trees produce berries that are relished by a wide variety of songbirds that have adapted to suburban life, including mockingbirds and robins, as well as the wandering flocks of cedar waxwings. For large deciduous trees, sugar maple and red or white oaks will provide seasonal cover, nest sites and fall and winter foods for a number of birds. The winged maple seeds are a favorite food of evening grosbeaks, and acorns a staple food of blue jays. Mountain-ash trees are somewhat smaller and produce bright berries that are attractive to the eye as well as to the birds, such as orioles, brown thrashers, robins, and cedar waxwings. The copious fruit of the red or white mulberry trees is a choice food of a multitude of suburban songbirds: cardinals, catbirds, goldfinches, blue jays, mockingbirds, orioles, robins, song sparrows, brown thrashers, cedar waxwings, and woodpeckers! But this fruit will stain, so don't plant mulberries where one might walk on the fallen berries and track them into the house. The pistils and stamens of mulberries and hollies are on separate trees; only the pistillate (female) tree will bear fruit, but the staminate (male) one must be in the neighborhood for pollination.

Small trees provide cover and nest sites in a vegetative layer that is sometimes left empty in landscape plans. To fill the space above the low shrubs and below the crowns of the largest trees, flowering dogwood, and the various crabapple and cherry trees can be planted; their blossoms are beautiful and their fruits good fare for many birds. The evergreen spruce and hollies will provide year-round cover in this layer, for their crowns begin low to the ground.

Shrubs are more important to birds than many people realize; it is a common misconception that all birds nest in the treetops. Some birds do, but many others, including cardinals, brown thrashers, catbirds and mockingbirds, need shrubs or tangles of vines in which to build their nests. Shrubs are generally fast-growing and will quickly enhance the bird habitat in your yard. The choice of ornamental varieties in this group is large; just be sure to choose those that will provide food in addition to protective cover and nest sites. Try to plan it so that the shrubs you plant will be staggered in terms of fruiting times; this will assure that food is available for the birds during the various seasons of the year. For example, the summer fruits of Tatarian honeysuckle are choice foods of catbirds and robins (and its spring blossoms will attract hummingbirds).

For the late summer toward early fall, blueberries and blackberries can be available. But most importantly, the shrubs which fruit in the autumn and hold this fruit through the winter into early spring will help birds through the most critical time of the year. For shrubs in this group, choose autumn olive, firethorn (*Pyracantha*), or a sumac. European privet hedges provide cover and nesting sites, and left untrimmed will yield berries that are good winter food. For low evergreen shrubs to use along a walkway or as foundation plantings, try Japanese holly or ground juniper. The colorful Japanese barberry is valued for nest sites and late winter food. Among the vines, the best is Virginia creeper, which produces berries that are excellent fall and winter food for songbirds.

A large group of birds feeds mainly on seeds of herbaceous plants. These birds include mourning doves, goldfinches, juncos, white-throated sparrows and song sparrows. Instead of continually mowing your entire yard, consider letting a back corner grow wild. Some people may feel this is unsightly or aggravating to their allergies; but you'll be surprised how many birds will find such a food patch very attractive. An alternative is to plant cultivated varieties of annuals related to the plants which support these seedeaters in more natural areas; for example, asters, marigolds, zinnias and sunflowers.

The arrangement of the ornamental plantings is a very important factor. The various objectives of landscape plantings (shade, screening, foundation planting and borders) are compatible with management for desirable songbirds; so songbird management and attractive landscaping can be accomplished in the same effort. For example, linear or clumped arrangements of vegetation are better bird habitat and better visual design than scattered individual plantings. Shade trees in otherwise open yards can form the nucleus of a songbird oasis if a clump of shrubs is planted around the trunk. A row of white pines will serve as a visual screen and windbreak, reduce noise levels and provide good cover and nest sites for birds. For foundation plantings, put larger evergreens at the corners of the house, adjoined by smaller ones along the sides. This will attractively frame the house while providing cover for birds such as song sparrows and wintering white-throated sparrows.

The places where different vegetative types meet are the most valuable for songbirds; the highest numbers of bird species and individuals will be found here. You could plant a row of trees along your lot boundaries, and a row of shrubs just inside of the trees. This will result in high foliage adjoining low foliage beside the open lawn. Such an arrangement will accommodate a large variety of songbirds.

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CARDINAL



BARN SWALLOW



EVENING GROSBEAKS



MOCKINGBIRD

Ghost of Cow Horn Hollow

by WILLIAM W. SADLER
Ashland

Tranquility suddenly ended; the hypnotic murmur of the distant James, the subzero quiet of dawn, the tinkle of falling sleet, all violently interrupted by the singing of shattered ice exploded across a glazed blanket of snow. The big stag's thrashing hooves cut sheets from the crust as he lunged toward the ridge's crest.

On he came, belly deep in snow, steam belching from his nostrils, proud and powerful in his strides, deliberate as if driven by a devil's soul.

Wedge tight in the fork of a maple, the old British .303 rifle followed his progress. I forgot my cold aching feet and numbed hands as Pa, squinting through the peepsight, slipped the safety to fire position.

Two hundred yards he closed and with a quick glance Pa told me, "This time boy, we got him for sure!" We had done this before; waited, stalked, planned, and waited for that same illusive creature now standing 150 yards away half hidden by a snow-covered bough. He was searching for the foe which intuition and wisdom told him existed.

Down wind, camouflaged, and ready we waited for him to make his move. Although I would not admit it to Pa, I remembered wishing the buck would retreat so we could start for home. It was nearly three miles out of the hollow in two and a half feet of frozen snow, it was sleeting again, and besides those biscuits were probably hot in the oven about now with chocolate in the making.

As if in defiance of humanity, he stepped out, broadside to us and stood staring at the opposite ridge from where he had come.

When Pa shifted his weight, I squinched up my face for I dared not move to cover my ears. Instead of the anticipated blast, a sharp but lazy "click" jarred me to to reality. The low temperature had caused a skim of oil to stiffen about the firing pin and had caused it to hang up.

Pa bolted and aimed again, then again, the clicks rang out like red oak being split with wedge and hammer. The 180 grain loads lay quiet in the chamber and no blast ever came.



One winter, as luck would have it, on the last day of hunting season, I was delayed by a Saturday morning chemistry lab. Disappointed over being late but yet excited about the few remaining hours of daylight, I wasted no time in finding my rifle and donning my new hunting suit Pa had laid out for me. The day was cold, yet bright; there was not a breath of wind and the Jays and catbirds were competing for an audience. The sun had just melted the lingering frost from beneath the fence rails and a low cloud could be seen in the distance. The leaves were raspy on the trees and the birds were in the thick of their fall song. I cracked the door open and stepped out. The first thing I noticed I would call the "horrid" smell of the woods and the feeling of the sun on my face.



The moist forests and cliffs of the Appalachian Mountains of Virginia and West Virginia provide one of the last sanctuaries for small, slimy-skinned survivors of the Carboniferous period, the plethodontid salamanders. The Plethodontidae constitute one of the largest families of salamanders in the United States, and are unique among terrestrial vertebrates in that they lack lungs. Instead they breathe through the wet epidermal membranes of the body and mouth cavity; of course, this type of respiration dictates that these animals remain in or around water. Another identifying characteristic is a small groove, the naso-labial groove, which runs from each nostril to the upper lip. This structure serves to drain the nostrils when the animal emerges from water and thus aids in respiration.

The Green Salamander, *Aneides aeneus*, is perhaps the most interesting representative of the Plethodontidae. The only green-colored salamander in the United States, its dorsal surface is flecked with specks. When mature the Green Salamander is three to five inches in length. They are primarily cliff dwellers, living in narrow cracks and crevices, but are occasionally arboreal (tree dwelling). They are adapted to this way of life by having a flattened head and body, permitting them to move freely in tight places. The gold-flecked green body camouflages them when they emerge on moss and lichen-covered rocks. Large prominent eyes help them to see in the darkness of recesses and crevices.

The toes of Green Salamanders are also unique. Their truncated or flattened, square-tipped toes pro-

vide "sure-footed" security on the moist vertical rock surfaces. Essentially the toes have a suction cup effect.

All cliffs within their range do not necessarily provide suitable habitat. The salamanders are particularly abundant on sandstone outcroppings which are damp (not wet) and partially sheltered from direct rain and sun. The cliffs must also provide cracks and crevices in which the salamanders can take cover. These shelters are much prized by Green Salamanders; indeed, there is evidence to indicate that they are territorial-combats over crevices have been observed.

Green Salamanders feed at night and spend the day in hiding; food items include insects which frequent the same outcrops. Very little is known about their actual reproductive habits. Mating usually takes place during July and August. During courtship the male deposits a gelatinous mass (spermatophore), containing sperm, on the substrate. The male also rubs his nose on the female's head and neck. The naso-labial groove is believed to be an important factor for scenting the partner and proceeding with courtship. Properly excited, the female places her cloaca over the spermatophore, and pinches off the cap, thus performing internal fertilization. The female later deposits ten to twenty eggs in a sheltered area that is moist and dark, and stands guard until they are hatched. The young are approximately three-fourths of an inch long and look like miniature adults, complete with green lichen-like markings. Hence, Green Salamanders have by-passed the traditional aquatic larval stage of most amphibians in order to better adapt to a terrestrial way of life.

VIRGINIA WILDLIFE

CONSERVATIONGRAM

Commission Activities and Late Wildlife News . . . At A Glance

KEPONE NOT HAZARD IN VIRGINIA DUCKS. According to an initial study of ducks from two areas of Virginia (the James River near Hopewell and the Chickahominy River) made by Virginia Institute of Marine Science Chemist Robert Huggett, there is little for hunters to worry about when bringing home ducks from this area. Although traces of the toxic substance were found in the livers of ducks taken from the James near Hopewell, Huggett stated that concentrations were not large enough to cause public health concern. The ducks tested from the Chickahominy River were free of Kepone. All of the waterfowl tested were taken last winter and the study is expected to go on this season in order to determine how much, if any, Kepone is picked up by ducks wintering in Virginia. The affects of Kepone is expected to be seen mostly in diving ducks which fortunately do not usually frequent the area of Virginia most heavily contaminated with the pesticide.

LUCKY HUNTERS CHOSEN BY COMPUTER. Waterfowl hunters who applied for blinds at Game Commission hunting facilities have chosen at random by computer from V.P.I. at Blacksburg, Virginia. Of the 4500 applicants, 694 will receive permits to hunt waterfowl during the season, December 8 through January 20. Even though considerable time and effort by Game Division personnel is required to process the applicants, all permits should be out by November 1.

VIRGINIA WILDLIFE FEDERATION NAMES AWARD WINNERS. The Commission of Game and Inland Fisheries and the Virginia Division of the Izaak Walton League of America were among the organizations and individuals who received awards at the Wildlife Federation's Conservation Awards Banquet held in Virginia Beach recently. The Game Commission and the Virginia Division of the Izaak Walton League were recognized for their jointly sponsored conservation education programs which for more than a quarter of a century have literally "opened the great outdoors to thousands of school-age youth throughout the Commonwealth". Dr. William J. Hargis, Jr., Director of the Virginia Institute of Marine Science, Gloucester, Virginia, was selected as winner of the Virginia Wildlife Federation's Conservationist of the Year Award. The Federation praised Dr. Hargis for his outstanding work, both professionally and as a citizen in the fields of marine science, costal zone management and oceanography and expressed the hope that his example will encourage all citizens to work for environmental equality. In addition to his role as head of VIMS and as an educator, Dr. Hargis serves on numerous boards and committees and is currently chairman of the National Advisory Committee on Oceans and Alexandria as Wildlife Conservationist of the Year; Oliver W. Lineberg of Lynchburg, Soil Conservationist of the Year; Mrs. Marian K. Agnew of McLean, Virginia, Water Conservationist of the Year; Edward Stuart, Jr. of Wake, Virginia, Forest Conservationist of the Year; Dr. John F. Hosner of Blacksburg, Virginia and VPI&SU as Conservation Educator of the Year; Glynn Moreland of Leesburg, Virginia, Youth Conservationist of the Year; Roland Leverton of WBEC-TV, Norfolk as Conservation Communicator of the Year; The Chesapeake Bay Foundation, York Chapter, Inc. as Conservation Organization of the Year; Reverend Howell H. Eaton of Mouth of Wilson, Virginia, as recipient of the Randy Carter Award For River Conservation.

Aids To Navigation

By W. DAN HADEN, JR.
Charlottesville

Navigation in a small open boat is sometimes a hazardous form of recreation, and anything to make it easier will encourage us to be more careful and accurate in our travels over open water. The use of accurate charts is the final answer to most of the problems involved in this undertaking, but at times this is not at all practical.

There is no substitute for accurate charts, together with the knowledge and ability to use them. A lot of good can be gotten from perusal of your area charts. Practice plotting a course or two while enjoying the comforts of your living room. When and if it is ever necessary to do it in less favorable circumstances it will be a lot easier. Even old timers will admit that they have been 'confuse' as to their exact whereabouts, and all of us know how similar landmarks can look from several miles away.

Having been bitten hard by the bluefish bug some years ago, I finally got a place near the Bay, and I usually enter this body of water through the Hole in the Wall between Gwynn and Rigby Islands. However, this area is not prime bluefish water, and we have to go to other places where they love to hang out, like buoy 36, or York Spit or the Target Ships. These places are all several miles away, and on overcast days one has to navigate fairly well to come close to a mark. I know it's hard to get lost in Chesapeake Bay, but it can be done. Anything that makes it easier, quicker or simpler to head in the direction you want to go, will take off a big strain.

Even in calm, clear weather it's much nicer to know that you should be on a course of 25°, rather than headed "somewhere over thattaway", especially when you may be going 15-20 miles and a few degrees of course could cause a lot of looking around for markers later on. This means less fishing time!

I learned that it is easy to forget simple things like distances, times and courses just when you need them the most. It is no trouble to chart your course accurately and quickly on the ground, or tied up at the dock. But, what if when I get to buoy 47 the fish aren't biting there but are raising cain down at 36? Which way? How far? Get the charts out and let's see-- but, that's the chart with the beer stain on it, or the hole in it, or it blew overboard last week. So, we head over

MAGNETIC COURSES FROM THE HOLE IN THE WALL TO:

STINGRAY LIGHT	355	175	6 mi.
WINDMILL LIGHT	10	190	8 mi.
BUOY NO. 1	15	195	6 mi.
BUOY NO. 48	20	200	20 mi.
BUOY NO. 47	30	210	13 mi.
BUOY NO. 44	35	215	12 mi.
BUOY NO. "R"	38	218	6 mi.
BUOY NO. 40	60	240	11 mi.
BUOY NO. 38	85	265	10 mi.
BUOY NO. 36	115	295	8 mi.
WOLFTRAP LIGHT	160	340	5 mi.

FROM	TO		RETURN	DISTANCE
36	MATTAWOMAN	120	300	5 mi.
36	38	35	215	6 mi.
38	48	345	165	18 mi.
48	TARGET SHIP	85	265	5 mi.
48	SMITH PT. LT.	360	180	8 mi.
48	WICOMICO	300	120	5 mi.
48	47	180	360	7 mi.
48	INDIAN CR.	235	55	8 mi.
48	WINDMILL LT.	205	25	11 mi.
47	INDIAN CR.	285	105	8 mi.
47	WINDMILL LT.	235	55	6 mi.
47	"R"	210	30	6 mi.
36	WOLFTRAP	255	75	6 mi.
36	NEW POINT LT.	235	55	12 mi.

thattaway, hoping we come close enough to see the boats of those already there.

Most of this confusion can be prevented or eliminated with our Handy Dandy Navigation Helper. If you customarily use the same launching area or starting point it is easy to plot the courses, distances and reciprocals to and from most of your favorite spots.

The other half consists of the same information for the courses between these places, so you can get from one to another without having to worry with getting out the charts. It also adds to the value of this gadget if you plot courses and distances from a fishing spot to an alternate marina or sheltered area, so that when you need one in a hurry, there it is. All this information can fit on both sides of a 4x5-inch card? and if it is type-written in capital letters it is very easy to read in the roughest sea or heaviest rain.

Type all the information you may want on each side of a suitable sized card. Then, to protect it from the elements, cover it with a clear plastic paper or photograph protector and seal the edges. Once you have it nice and weathertight, tie it to the compass or put it in a holder on the dashboard. Don't put it in a storage cabinet or down in the bilges, or even in a fishing tackle box. Put it where you can get it right now!!

Now you are ready to take off over the horizon, but only if your compass is reasonably accurate, or if you know (and have written down) how much error it has. It doesn't help a bit to know what the course is if you can't get on it. Be sure and check that compass out thoroughly before you do any out-of-sight-of-land boating. You'd be surprised how much they can be off.

Finally, be sure you have a chart of the area on board at all times, because the Handy Dandy can't identify buoys or markers you may come upon and not recognize.

Grouse - counting your hits and misses

By BILL TREADWELL AND JOE COGGIN
Virginia Chapter, Ruffed Grouse Society

AT AN EARLY STAGE in our country's development, pioneers and backwood hunters referred to the ruffed grouse (*bonasa umbellus*) as the "fool hen." Even in certain remote parts of the United States today, still virtually untouched by man, the grouse continues to live by that name. But this does not hold true in our part of the woods. Each season Virginia hunters can attest to the fact that it is usually "he" who turns out to be made the fool.

Numerous hours have been spent chasing the secretive, wily grouse, only to catch a glimpse of it thundering out of thick brush and darting into undetected cover. No longer do you have to apologize when that first, second or maybe even third shot misses the mark. You may not be putting meat on the table this way, but the experience you just encountered is now valuable data which can be used by the Virginia Game Commission.

Biologists know very little about ruffed grouse, in comparison to turkey, deer and most other game species. To better understand grouse trends in Virginia, a survey was developed in 1973 to gather the needed data to solve some unanswered questions. Most of the cooperators in the survey have been members of the Virginia Chapter of The Ruffed Grouse Society of America. The respondents are labeled somewhat "special" because of their rendezvous with Ruff. These more avid hunters took the time and trouble to keep records of each outing and report them at the end of the season. To these, the tabulations are not mere statistics, but a very personal moment of truth between the hunter and his adversary.

The coming 1976-77 season begins the fourth consecutive year that Virginia grouse hunters have participated in the Ruffed Grouse Survey. We started the survey in a cooperative effort with the Virginia Chapter and their membership was the first mailing list. The survey requested each cooperator to send in the portion of the grouse wing that contained the primary wing feathers and the central tail rectrice from the semicircular fan. These feathers are used to determine whether the bird is a juvenile or an adult (from the shape and scale of the outer wing feathers) and whether the bird is a male or female (measuring the length of the

tail feather). We could determine the hatching and rearing success as indicated by this data and the number of juveniles per adult hen.

Hunters were asked to keep records on their hunting activities, such as date, hours and county hunted in, number of birds flushed, number of shots fired, number of birds bagged, wounded and missed and the kind of dog used if they used one. Information on weather was also collected. You might say a miss counts almost as much as a hit as far as data is concerned. This is the first time this information has been known about Virginia grouse, except for a few small studies confined to specific areas.

The first year of the study (1973-74) we received information from thirty-three hunters who sent feathers from 194 birds. Last year (1975-76) we received information from sixty-three hunters and feathers from 350 birds. We hope the number of co-operators on this survey will continue to increase in future hunting seasons.

One of the main reasons we strated this survey was to develop trend data so biologists could better understand the relative abundance of this bird in Virginia from year to year. This would give us data to indicate years of high and low populations and maybe some indication as to why we have these fluctuations if it turns out to be related to hatching and rearing success ratios. The survey is not intended to become just a "numbers game." Biographical information such as this is always considered when trying to set hunting regulations for any species.

Try to provide vegetation of all different size classes: large trees, small trees, shrubs, and herbaceous plants. Both deciduous and evergreen trees and shrubs should be present, and species which produce fruit or seed attractive to birds should be used wherever possible. When a tree or shrub is planted for its food value, cover and nest sites will also be provided.

What is the survival rate among sexes are hatching? Why are the harvest ratios so much closer in juveniles than in adults? What are the solitary and grouping habits of grouse in winter? Do young birds stay closer to the adult hen? Why isn't there a larger number of juveniles in the early part of the season? These are some of the questions a research biologist seeks to answer about grouse and is what the survey is all about.

One of the most important things to be noted is the per cent of juveniles in the harvest. A thriving grouse population as determined by other researchers should be around 65 to 70 per cent juveniles. A ratio of 3 juveniles per adult hen is normally considered necessary to maintain the population. This means (according to the table) that production and rearing success during the last three years has been low. The same thing is indicated by the number of juveniles per adult hen and grouse flushed per hour has also been low for the past three years. The 1974-75 season was the "low year" and hopefully we are on our way back to a "high" grouse population, but only the future and more data will tell.

The high percentage of males in the harvest during all three seasons may seem odd since the ratio at hatching is about 50-50. However, it is consistent with surveys made by other states and is not too surprising. Various reasons for the high harvest of males (mostly adults) have been postulated but the real reason remains obscure.

Table II shows hunter success during the four months of the grouse season. Keep in mind that the first and last months are shortened due to the regulated season dates on other small game. The monthly harvest figures reveal data as to how weather conditions affect grouping or scarcity of birds during our more inclement periods of the season, as well as hunter activity trends.

Though some would interpret these findings only in terms of birds brought to bag, most grouse hunters pursue the noble grouse because it is an "individual"

kind of sport, for an "individual" kind of man. This person has an appreciative knowledge and fondness for the mountains, briar jungles and grape thickets and the wind-swept hollows.

One might also want to inject hunter "success" from our data. For statistical purposes this word is fine, but how does a grouse hunter measure success? It is mainly contentment - how you personally feel about the sport of grouse hunting. It is the challenge of trying to outwit your opponent; an appreciation of the time spent in the woods; the companionship of a fellow hunter or watching your dog go on point; and the satisfaction of sharing experiences with those who "truly" understand. Success is not necessarily just bagging your prize but how much you get out of hunting.

It was stated earlier that we really need more years of data, co-operators, and grouse, to make the data more meaningful. A recent hunter survey conducted by the Commission shows there are about 40,000 grouse hunters in the state. It is hoped we can increase the number of cooperators this coming year, and interested hunters can get on the mailing list to participate by writing to Joe L. Coggin, Rt. 1, Box 239, Eagle Rock, VA 24085. The surveys are sent in anonymously, so don't worry about your favorite covers being revealed.

Also, to help perpetuate and increase grouse populations, which indirectly supports a number of wildlife species in our forest ecosystem, membership and society benefits in The Ruffed Grouse Society of America can be obtained by writing to 555 E. Main St., Kingwood, West Virginia 26537.

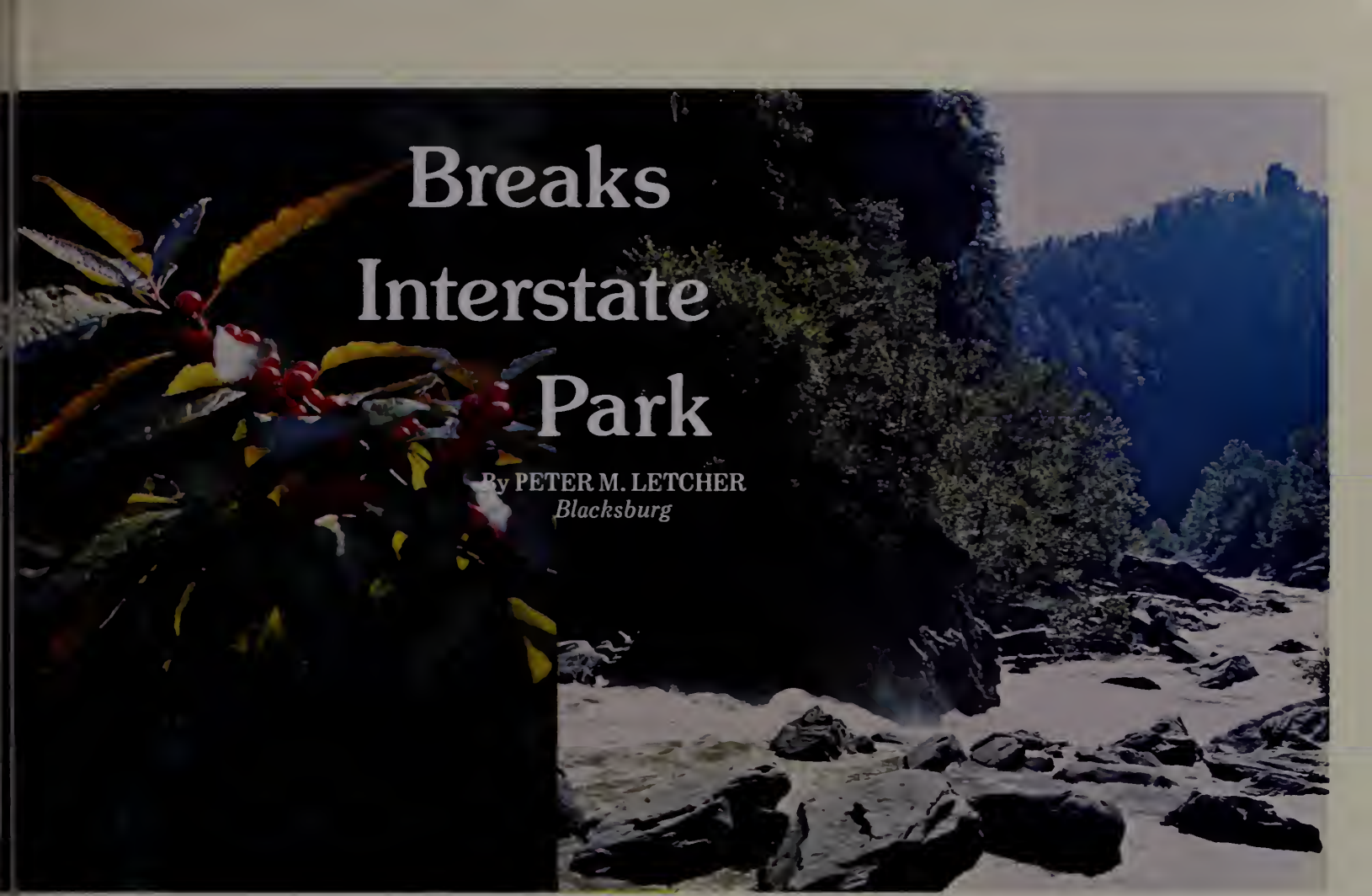
TABLE I

SEASON	Birds Harvested:		TOTAL	% Juveniles	% Males	Juveniles per Adult Hen	Grouse flushes per hour
	Adults	Juveniles					
1973-74	104	88	192	45.8%	68.2%	3.0	1.3
1974-75	86	30	116	24.0%	66.4%	.9	.9
1975-76	216	134	350	38.3%	67.7%	2.2	1.0

TABLE II. TOTAL GROUSE HARVEST AND PER CENT OF TOTAL HARVEST BY MONTH, 1973-76

SEASON	1973-74		1974-75		1975-76	
	Total Harvest	% of Total	Total Harvest	% of Total	Total Harvest	% of Total
November (3 weeks)	43	21%	60	40%	104	30%
December	73	33%	33	20%	120	34%
January	67	31%	36	24%	80	23%
February (2 weeks)	31	15%	22	16%	46	13%
TOTAL	214*		151*		350	

*Figures differ from harvest count totals in Table I for lack of complete feather data in sexing and aging of some birds.



Breaks Interstate Park

By PETER M. LETCHER
Blacksburg

In this day and time the region of the central Appalachians--Appalachia, as it is widely known--is associated in part with some of the more discouraging aspects of life such as poverty and welfare lines, environmental disturbance in the form of strip mining, and clannish mountain folk tucked away from urban civilization, gloomy in their board shanties. To a great extent the association is real; these segments of life do exist in Appalachia. However, on the other hand, they do not reflect the total realm of that world, a geographical segment of North America covering thousands of square miles.

Wildness is what a great part of Appalachia is about. In what might be called the heart of the Appalacian wildness lies Breaks Interstate Park, a little-known area of 6000 acres on the Virginia-Kentucky line, about 100 miles northeast of Cumberland Gap National Historical Park.

Each season in the Breaks is unique. Spring is cool on the mountain slopes, filling each pass and sheltered valley with wildflowers of unquestionable artistry. Clustered so close as to smother each other are trout lilies and spring beauties, delicate under a veil of morning dew, introducing the youthful season of the year.

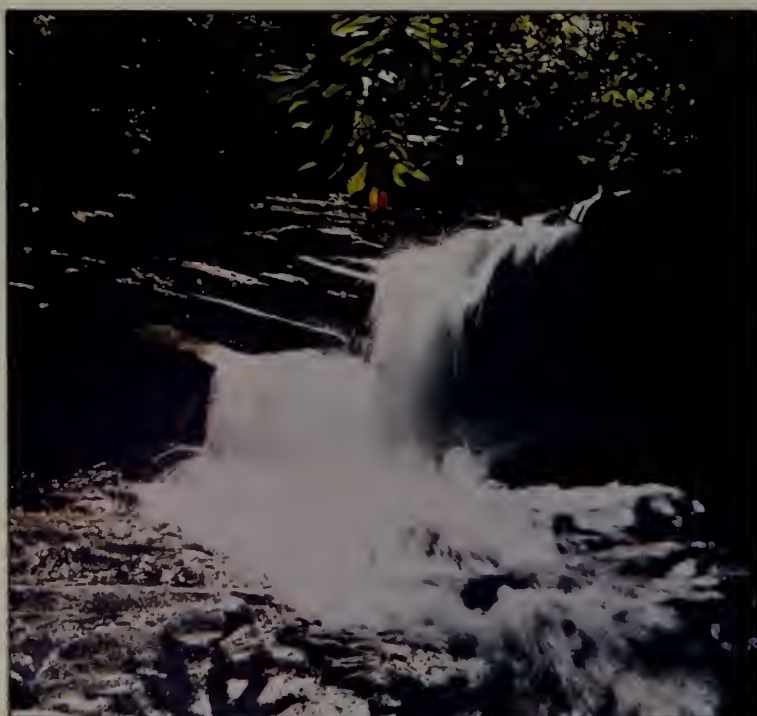
Summer, at first glance, seems almost sluggish with inactivity. Watershed creeks have dried up, and the sounds of running water have been replaced by the monotonous droning of bees and other insects.

The quiet season in the Breaks of autumn. Fog lies heavily in the morning, leaving spider webs glistening with dew drops for a few moments after the sun burns through. Midday basks in warmth, bringing glorified autumn sunsets. There seems to be an abundance of evenings in which "mare's-tails"--high cirrus clouds in feathery wisps--reflect the rays of the lowering sun, turning the skies to a fiery amber.

The Breaks, exposed to a broad mountainous valley to the north, receives the brunt of winter. Snow upon snow is an addition to the wilderness beauty, loading the boughs of hemlocks and blanketing the sparse grassy areas. Ruffed grouse, wild turkey, squirrel, fox, deer; all are afield, but seemingly just out of sight.

The often used cliché, "a diamond in the rough", cannot be improved to describe the wilderness area of Breaks Interstate Park. The mountains, the river, the gorge- all in harmony- shine brightly through the Appalachian haze.

OPPOSITE PAGE LEFT: Winterberry holly grows abundantly along the rugged banks of Russell Fork River. RIGHT: Camp Branch Creek is a series of shallow pools and waterfalls which leads to Russell Fork River. THIS PAGE: A spider web is adorned with beads of dew on a cold October morning. White baneberry (BELOW) also known as Doll's Eyes is a wildflower with a fruit containing a poisonous glycoside. Lazily winding its way over tilted sedimentary shelves, Camp Branch Creek travels to the Russell Fork River. Indian pipes (BELOW RIGHT) appear in late summer and early autumn, decaying the rich organic leaf and conifer litter. Ice and snow decorate Camp Branch Creek (RIGHT) during the winter months at Breaks Interstate Park.



Laurel Bed Trout

By ROBERT E. WOLLITZ
Supervising Fish Biologist

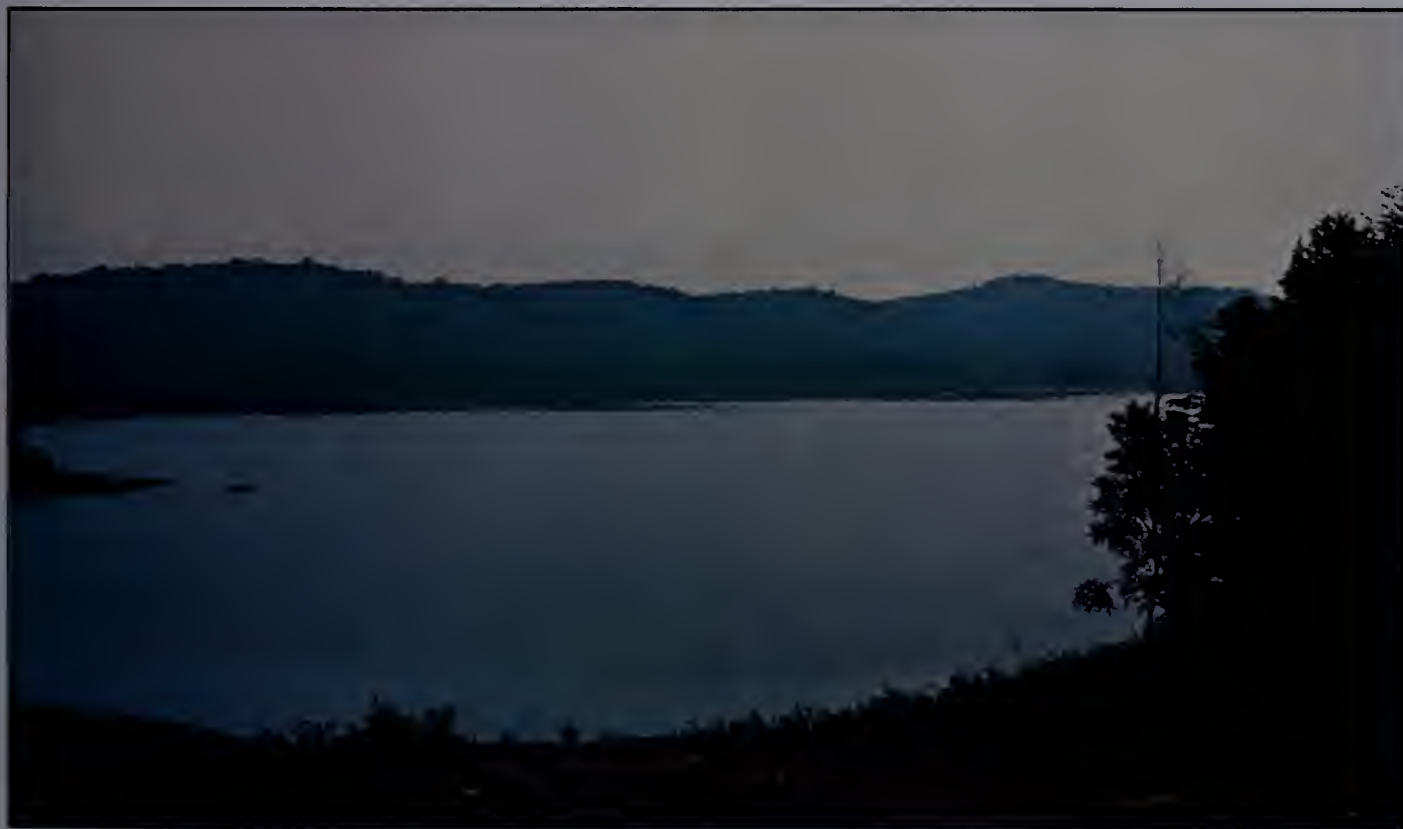
During the fall of 1968 the valve in the newly constructed dam on Laurel Bed Creek was closed and Laurel Bed Lake was born. Laurel Bed Creek, on which the dam is located, together with Brier Cove Creek form Big Tumbling Creek the state's highly popular fee fishing area located in the Clinch Mountain Wildlife Management Area, near Saltville, in Southwest Virginia.

Much of the lake basin was formerly a swamp, thus, large amounts of organic material have been incorporated into the lake which has imparted a brown, coffee-colored stain to the water. The surrounding area is entirely forested.

The lake has a surface area of approximately 330 acres. The maximum depth near the dam is about 38 feet. The average depth is, however, about 10 - 15 feet.

As soon as a sizable body of water was formed behind the new dam, 14,810 yearling brook trout were introduced. In addition approximately 300 three year old breeders were introduced. These fish appeared to do well up until about the first of July, 1969.

On July 5, 1969 a report was received stating that trout were dying at the upper extremity of the lake. An investigation revealed approximately 500 dead trout in the uppermost extremity of the lake and an additional 500 were observed to be in distress. Cause of this mortality appeared to be high surface water temperatures combined with low oxygen concentrations. Surface water temperature in the upper portion of the lake was 82°(F). The maximum temperature that brook trout can survive is thought to be 77°-78°(F). Ordinarily, trout could be expected to seek deeper, cooler waters as the surface water warmed and approached their upper temperature tolerance. However, in the case of Laurel Bed Lake this was not possible. Although deeper, cooler waters were available; these areas did not have a plentiful oxygen supply. Dissolved oxygen in deeper water had declined to about 3 ppm which may be considered borderline for survival, at best. Temperature and dissolved oxygen measurements throughout the lake at later dates indicated marginal conditions for trout. Water temperatures above a depth of 15-feet frequently approached



the critical point and little or no oxygen could be found below a depth of 15-feet. Thus, trout were forced to remain in the warmer oxygenated waters between the surface and the 15-foot depth.

Fish continued to die in small numbers throughout the remainder of the summer. Since few fish died at any one time no accurate count could be made but it is believed that a large number of fish died throughout the period. Investigations carried out during 1969 and 1970 indicated that the loss of oxygen in the cool deep waters of Laurel Bed Lake during the summer months was probably due to the decomposition of organic material on the lake bottom; to the oxidation reduction cycle of iron; and to the lack of light penetration due to the coloration of the water. Investigators in Michigan and Wisconsin suggest that lime be added to lakes such as Laurel Bed. They theorize that the addition of lime may cause the water coloration to clear considerably, thus permitting greater light penetration. This increased light penetration would allow increased photosynthetic activity by phytoplankton (microscopic plants) at greater depths, resulting in more dissolved oxygen in the deeper, cooler levels of the lakes.

Since the addition of lime had met with varying degrees of success in other areas, it was decided that it should be tried in Laurel Bed Lake. Following the lime introduction, lake waters began to clear and by fall the color of the upper 15-feet of the lake water had been reduced 58 percent. During succeeding years color in the surface waters has continued to decline. At the present time no color can be detected in surface waters during much of the year. Only during July, August and September is a brown strain noticeable in the water.

No clearing of bottom waters was noted until 1972 when color was found to have been reduced 47 percent. During succeeding years, color of the bottom waters

has continued to decline and has followed a pattern similar to that of surface water.

It was noted that following treatment with lime, a considerable increase in the numerical abundance of many of the trout food organisms took place. Aquatic insect numbers also increased.

Lake Renovation. Due to engineering problems with the outlet structure, it was decided to drain Laurel Bed Lake down about ten feet for inspection. Since problems appeared to be developing with the trout fishery, apparently due to competition between the trout and rock bass (redestye), it was decided to further reduce the lake area and eradicate the rock bass.

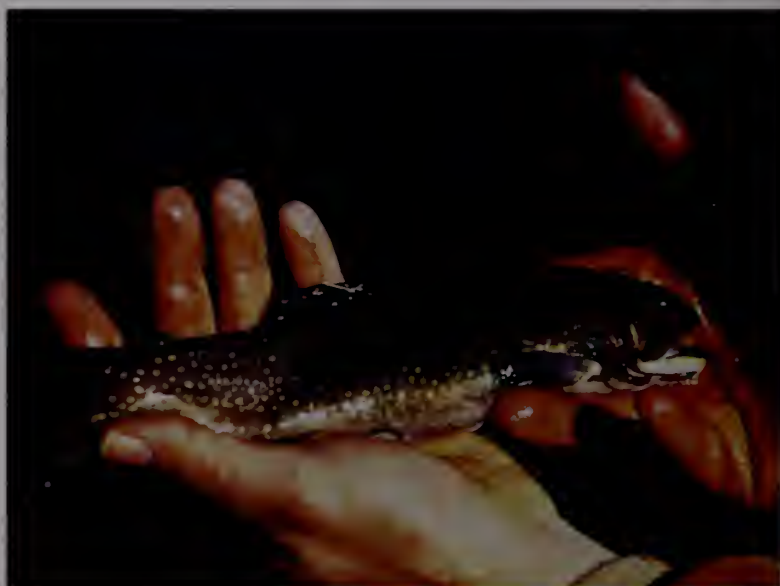
Rock bass first were observed to be in the lake in 1972 and have become increasingly abundant since that time. The lake was reduced to about 16.6 surface acres and treated with a fish toxicant called Fintrol Concentrate. Following this treatment, a total of 22,000 dead rock bass, 31 brook trout, one brown trout and one goldfish were counted. On succeeding days an estimated 30,000 - 40,000 additional rock bass were observed but not counted.

Prior to applying the toxicant, several days were spent in attempting to remove brook trout from the lake to use in restocking after the rock bass were eradicated. During this period of fish salvage, only about 50 trout were removed.

Thus the eradication program resulted in the elimination of 50,000 - 60,000 rock bass, 82 trout (including those removed beforehand), one goldfish and one black crappie (removed beforehand). From this, the results of introducing rock bass into the brook trout population of Laurel Bed Lake are obvious. Once

Continued on Page 30

OPPOSITE PAGE: Laurel Bed Lake is serene in the summer sun. **BELOW LEFT:** Laurel Bed Lake is transformed by winter snow. **BELOW:** Brook trout, stocked by the Game Commission, are coming into their own in Laurel Bed Lake.



Tuning Deer Rifles

By BEN HILLMAN

Any treatise on hunting should first establish ground rules on where and how it is to be done. I live in central Virginia and am within three hours of practically any hunting spot in the state. The game I can expect to encounter is limited to basically three species: whitetail deer, black bear and wild turkey.

The likelihood of the encounter varies with the locale, as does the terrain, therefore altering the nature of the shot. It can be in a thicket, an average-size farm field or on the side of a distant mountain. Naturally, to anticipate situations it is necessary to know the area you plan to hunt and carry the equipment that will do the best job on what you expect to meet there.

The high terrain of western Virginia demands certain things in a rifle, but most of all it means that you have to put your game in the bag with one shot or quite likely someone else will tag it. The hunting pressure is that stiff, and tracking extremely difficult.

For years my solution to this problem has been a 270 scoped with four power optics. It is a good compromise and light enough to carry on steep grades. With my 270 I have made kills on deer at ranges out to 200 yards. Usually only one shot was required. I shot at game at longer distances but I now believe 200 yards to be the limit of my effectiveness for everything but turkey.

Since the 270 is the mainstay of my big game battery, I sight it in first. Mine is a bolt action so the initial step is to remove the bolt and boresight at 25 yards. Then I shoot at 25 yards and 100. This year the whole process took only five rounds, two at 25 yards and three at 100. Sandbags and a steady rest are essential for this operation. I center my group one and one-half inches high at 100 yards, which gives me a point-blank range out to about 300 yards, where the bullet is only eight inches low. The much talked about "Rule of Three" sighting-in system may work well in wide open spaces but it would cause me mid-range misses (from shooting too high) and I have abandoned it.

My present load for the 270 is a compromise brought about by the current economic situation and the scarcity of components in my area. Hornady 130 grain bullets shot well in my gun over 58-59 grains of 4831 powder but this year I ran out of both items. All I had on hand were 130 grain Sierra boattails and 4064 and 4350 powders. I didn't even have any Winchester cases



and, unfortunately, most reloading data is based upon them. My first handloads were near maximum charges of 4350 in Remington cases, and my 270 grouped them in about two and one-half inches. This degree of accuracy was and is unacceptable where that first shot is so important, so I decided to try 4064. A much respected gun scribe has indicated that 49½ grains of 4064 and the 130 grain bullet would shoot in any 270 he had ever owned and I decided to give it a whirl. This load is listed in the manuals at or over maximum and since I was using Remington cases, I decided that I could reduce the charge one grain and get similar results (Remington cases hold less powder than Winchester brass but generate comparable ballistics

because there is less space for the powder to burn in, and therefore higher pressures grain for grain). My load of 48½ grains of 4064 grouped about one and one-half inches at 100 yards and I was satisfied with the accuracy. However, I still have some reservations about this combination. The boattail slug is ill designed for brush and the bullet jacket may be a trifle heavy for maximum expansion at all ranges. I will have to place my shot with care and try to pass up the extra long chances.

My remaining two rifles are the extremes between long range and brush bucking equipment. One is a 35 caliber lever action with open sights and the other a 6mm with a two to seven variable power scopesight. I consider either of them suitable for turkey and the 6mm marginal for deer and unacceptable for bear. Therefore, I take them where I think the appropriate action is. I would never carry the 6mm in bear country for obvious reasons. I put the same limitation on the 6mm as the 270 with regard to effective range but for a different reason. I certainly could hit a deer beyond 200 yards with the 6mm but the little 100 grain bullet has lost so much energy out there that a one-shot kill is uncertain.

As one would expect, I use my lever action in primarily thick cover where shots seldom run over 150 yards. I learned my lesson last winter about carrying a scope on the 35 in thick brush or inclement weather. My only chance for a deer that day went down the drain when I too late discovered water on the scope lens while trying to stop a six-pointer that exploded out of a laurel thicket high in the Blue Ridge Mountains.



My load for the 6mm is one that I'm well satisfied with and one which performs well. I use the 100 grain Sierra semi-pointed bullet over 43½ grains of 4350 and groups average one minute of angle (one inch) at 100 yards. The projectile is well designed for brush and should have sufficient remaining energy to make effective kills to 200 yards or a little better.

In the 35 I load 38 grains of 4064 behind Hornady's 200 grain roundnose bullet for about 1900 feet per second muzzle velocity. This combination zeroes at 100 yards when the rear sight is in the first notch and very closely approximates factory ballistics. With it I can put three shots offhand into an eight by eleven sheet of paper at ranges out to 150 yards and this is all the accuracy that is needed in this type weapon. To sight in with open sights just remember to drift the rear sight the way you want the bullet to go. Do your drifting with either a brass or plastic hammer to prevent scratching or gouging the metal.

My journeys to the eastern part of the state are made with a 12-gauge shotgun choked modified. My load choice for the vent-ribbed pump is the two and three-quarter inch magnum pushing 12 double-ought buck-shot pellets. This patterns extremely well in my gun at 40 yards. So far my longest kill with the 12 gauge has been a four-pointer crossing a pipeline at 75 yards. That is about the maximum range for this choke and load. I believe this to be the optimum rig for the dog-driven whitetails of eastern Virginia. Slugs and high powered rifles are illegal in some counties because of the level terrain and they are really not needed since an encounter with a bear is unlikely (with the exception of the Dismal Swamp where rifles may be used from elevated platforms).

Here are a few suggestions for getting that rifle or shotgun ready for opening day. Tighten all screws before sighting in because a rifle requires some shooting before it settles down. Use little or no oil on your guns in hunting season because there is too much chance of a gum-up or freeze-up. Feed all ammunition through the action of your gun before going hunting to make certain it is compatible with the gun's magazine and chamber. Do this at the range with the muzzle pointed toward the butts. If you are handloading for a lever gun, fire a full magazine through the rifle to make sure the crimp is satisfactory. Be sure to take the hood off the front sight ramp when using open sights in the field since all possible illumination is needed in the deep woods.

Opposite page: In Virginia's mountains and foothills a quick-firing level action such as this 35 Remington is the choice for making one-shot kills. Its 200-grain bullet hits with more than 1000-foot-pounds of energy at 100 yards.

Left: For long shots at big game it is best to use the sitting or prone positions. If any hunting is to be done in open country, a scope, sling or bipod are indispensable. The rig in this photo is a bolt action 270 with four-power scope.

Dutchmans Pipe

By ELIZABETH MURRAY
Charlottesville

Illustrated by Lucile Walton

SOME OF OUR local plants look as if they ought to belong in the tropics, particularly some of the massive vines with their twining stems winding upwards through great trees, huge leaves and often rather bizarre flowers and fruits. The family Aristolochiaceae is largely a tropical family with some 300 species. However, we do have about a dozen species in our eastern U.S. flora, divided between two genera, *Asarum* (wild ginger), and *Aristolochia*, and of these, *Aristolochia durior*, the Dutchman's pipe or Pipe-vine is the most grandiose.

During pollination, the flower plays a dirty trick on the pollinating insects, in this case usually midges or other small flies. The calyx tube is lined with long hairs which can be bent towards the morphological base of the flower, but not in the opposite direction due to a little saddle at the base of each hair. Soon after opening, the flower may be visited by an insect already carrying pollen from an older flower. The insect crawls down into the tube, pressing through the hairs which bend freely before him. Once inside, he is a prisoner, and while crawling around the basal parts of the flower, he deposits pollen on the stigma. After a day or two, the stamens ripen and the insect picks up some of this pollen. At this time, the hairs in the calyx tube wither and so the insect gains his freedom and is ready to visit other flowers.

The fruit of *Aristolochia durior* is a capsule, cylindrically-shaped and pointed, rather like an okra pod, about 3 to 4 inches long. It stays firm for several months, the valves separating only with age. The flowers bloom in the summer, and the fruits can be seen on the vine through the fall.

Our *Aristolochia* is probably not poisonous although the genus was mentioned in a list of French poisonous and suspicious plants published by Pierre Bulliard at the end of the eighteenth century. At any rate, it is not poisonous to butterflies. *Aristolochia durior* is the food plant of the pipe-vince swallowtail, *Battus philenor*, a distasteful but handsome blue and black butterfly of the eastern United States.

The word *Aristolochia* comes from the Greek *aristo* meaning 'best', and *lochia* meaning 'delivery', and the plants were given to expectant mothers to aid them in



childbirth. This practice related to the early idea of the "Doctrine of Signatures" which proposed that a plant, or part of a plant, which looked like a particular organ of the human body would be of medical benefit to that organ. The flower of *Aristolochia*, curving round so that the summit and base lie together, was considered to resemble the human foetus in the womb. Today the common name for the genus is still 'birthwort'. *Durior* merely means 'tougher' and replaces an older specific name *macrophylla* which means 'large leaf'.

The flowers of some of the tropical members of the genus achieve great dimensions. The largest known is *Aristolochia grandiflora* whose blooms are 20 inches across with elongated "tails" or "limbs" of up to 3 feet. Alexander Humboldt, the famous German explorer and geographer, who was in South America at the turn of the nineteenth century, recorded that Indian children there were wearing these flowers as hats. The common name for this species is Pelican flower because the unopened bud resembles a sleeping pelican in shape--and by my calculations ought to be nearly as large!

panion, rather than by a stranger two hundred yards away. Avoid horseplay. Don't carry loaded guns into camp, and empty them before putting them into an automobile. Never point a gun toward anyone else, not even just to swing by, as in changing directions. Abide by this rule regardless of whether your firearm is empty or loaded.

Statistics seem to mean little to some people. But sometimes they become very real too late. When that horrible nightmare won't go away, when they see their own best friend blasted apart by a load of buckshot, or even shot with a .22, then these statistics become very real, but very much too late.

SONGBIRDS OF SUBURBIA (continued from page 8)

The open areas of grass and garden with their seeds and insects are valuable as feeding areas, but they should not be too expansive. If the lawn is irregular in shape, and interspersed with clumps of ornamental plantings for cover, many birds will benefit. Arrange to leave open space in such a manner that the birds will be observable from the windows of your house.

Feeding stations, nest boxes and birdbaths are effective means of attracting birds to suburban lots. Each of these provides one of the basic requirements of some birds. However, the variety of birds which can be attracted by such devices is determined to a large extent by the characteristics of the natural or landscape vegetation in the surrounding area, for the other requirements must also be met. If you would like to have cardinals at your feeder, shrubs or tangles of vines must be present somewhere in the neighborhood to provide the cover and nesting requirements of this bird. House wrens will nest in a birdhouse (if the opening is small enough to exclude house sparrows or starlings), but it takes vegetation to support the insect populations which are the wren's source of food. A birdbath with a dependable supply of clean water will attract a number of birds to drink and bathe, but it should be located near some shrubbery for escape cover.

One additional note about attracting birds to feeders: remember that different birds have different food habits. Seed mixtures (particularly if they contain sunflower seeds) will attract many seed-eating birds; but don't rely on seeds alone. A supply of beef suet or bacon grease will provide fare for those birds, such as woodpeckers and Carolina wrens, which normally eat insects. Chickadees and tufted titmice will eat their share of both sunflower seeds and suet. Fruit-eating birds, including mockingbirds, catbirds, and cedar waxwings, can often be attracted by foods like raisins or apple slices.

House sparrows and starlings are very common in suburban areas, and are often considered undesirable neighbors. It is probably impossible to completely exclude these birds, since they are so well adapted to the environment which man has provided for himself.

Memories of more primitive days filled my mind as I moved to take my place of waiting. Days when hand-me-down denim jackets and overalls were worn instead of blaze orange outfits, when an old single barrel was cleaned and cherished, now replaced by a shiny rifle with a range of 300 yards. Times when hours were longer and cars could not be heard from the highways in the depths of the hollow. Years ago we had hunted him as a food source, and as his legend grew, for intrigue, now we hunted him with more specialized equipment for a more sophisticated reason; for sport. Pa had heard me when I first entered the hollow and a big grin swept his face to see me wearing my birthday present for the last hunt. We sat silent, watching the shadows lengthen while the chill of evening crept under our garments and made the hollow still.

Maybe he would not come, maybe our neighbor had not released the hounds down the river anticipating that the dryness of the leaves would not hold a scent. Once again, but in a new time, we waited. We listened. Was that a falling limb, perhaps a stray dog, or was it a squirrel fleeing the coming night? No, it was too large, it must be Darwin's creature approaching to retest his repertory of survival tactics. With his majestic head into the wind, he stood poised on the opposite ridge, forever listening, winding, searching as if for some lost companion. The years had taken their toll on him. His frame was slighter, his antlers more dark and broken, yet the fierceness still showed in his arrogant carriage.

Pa raised his gun, the bright new scope caught the fleeting rays of sunlight in the western sky. Like another time, Pa glanced at me with that reassuring look.

A large sycamore stump, just below us on our side of the hollow, held the stag's gaze as if some magnetic force existed between them. The safety did not click. At that instant, a strange and sinister incident occurred; one not to be retold nor believed except by hunters of the Phantom. An elderly gentleman dressed in an English tweed hunting coat, pants, vest, and riding boots, with a hammered double barrel across his arm, a thick bowled pipe protruding from his teeth, stood up, adjusted his short brimmed hat, and walked from the stump, down the ridge, around the bluff and out of sight. Not a whisper, a rustle, nor a leaf's cracking bore witness to his movements and the stillness of the hollow should have amplified his steps!! The big buck watched his departure, looked once in our direction, then turned back to the sanctuary of the timber.

How many decades had this silver headed gentleman hunted the Phantom, then come back to watch over him, how many rendezvous had they kept, how many warnings had he issued? Now, the old gentleman could rest, another had taken his vigilance!!



Folly Creek Notebook

By CURTIS J. BADGER
Onley

I want you to see Folly Creek and I want you to see this marshland. Right now the creek is still and it's a very deep blue but its edges are lined with gently wavering green reflections of tall *Spartina* grass. If you look closely you can see out-of-focus cloud formations floating just beneath the surface.

The creek is not wide here - less than 100 yards even now at the late stages of flood tide - and it flows calmly and surely, making swirls at the stern of this little boat as it casually goes about its business of ebb and flow.

Ahead the creek twists northward and disappears into a fold of marsh. If we go beyond the bend, you'll see that it soon cuts back to the south again. It does that all the way to Metomkin Inlet; it twists and turns like the meandering streams and oxbow lakes of freshman geology. If there were something to climb on, you could see it wander through these wetlands and you could see all the little tributaries, some only a few feet wide, that branch out at crazy angles and find their own dizzying way through the *Spartina*.

To get to know these wetlands, and to appreciate them fully, you are going to have to look at them closely, because the important things that happen in a marsh are the unobtrusive ones people seldom see. The best way to get to the heart of the marsh is to leave Folly Creek and pole the boat up one of the small tributaries. People who know the marsh call them guts, as distinguished from the wider and deeper channels called creeks.

Up here in the gut the tide doesn't run as swiftly, and with no motor boats and weekend fishermen to contend with, the marsh life can be a little more casual.

This is the marsh dwellers' downtown, where most of the population is centered and where day-to-day marsh business is always bustling. The chief profession in here is food processing, and the field is glutted with an interesting array of entrepreneurs. The most visible of them

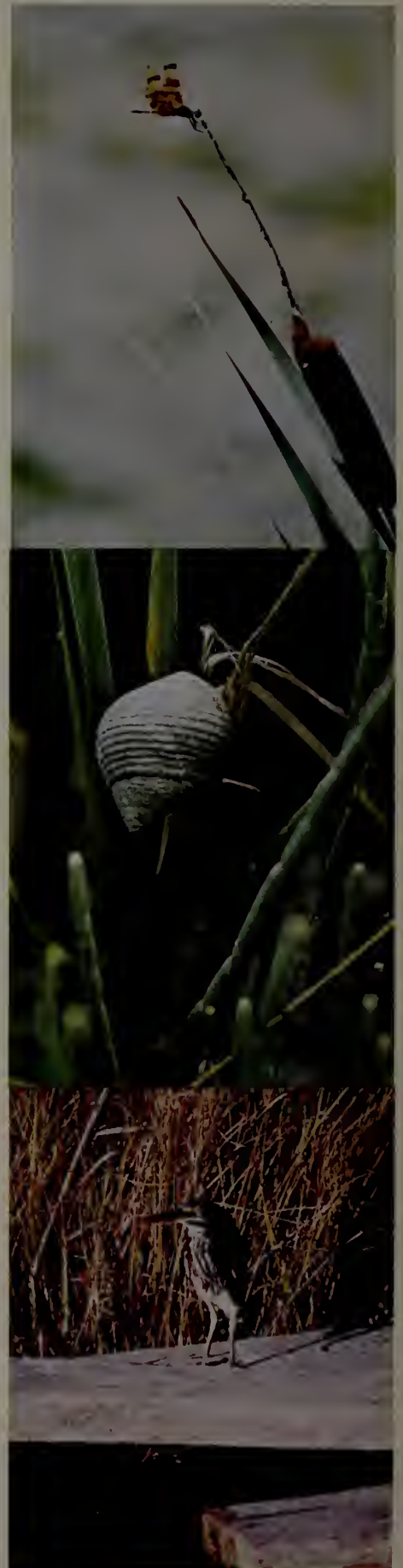
are the birds. Some, like the sandpipers that have staked out that mudflat, prefer to work in partnership. But farther up the gut a formal-looking snowy egret has established a sole proprietorship in the shallows, no doubt with the intention of cornering the killifish market. Soon he'll tire of his location and take his business elsewhere, perhaps trading locales with his cousin, the great blue heron.

Listen. You can hear the sounds of the marsh. The laughing gull that circles overhead is chuckling at some private joke. Shorebirds are whistling a soft "jeep-jeep" as they fly low and swiftly along the muddy banks. Somewhere out in the Spartina a clapper rail gives a raucous yell: "Raaaaak-rak-rak-rak." The rail is shy but vociferous. You won't see much of him except when the tide covers his hiding place, but his loud call is unmistakable.

When fall comes, the rail will be a favorite game for hunters, but many other birds of the summer marsh will be migrating south for the winter. As the summer birds leave, the winter birds come in. By November there will be black duck, mallard, teal, mergansers and bufflehead in this marsh. And farther out, toward the ocean and the barrier islands, there will be scoter, brant, cormorant and Canada geese and snow geese. Fall brings about a dramatic change in the neighborhood.

Let's look closer at the marsh, there's more to be seen. Here among the roots of the Spartina, where the water is shallow and still, is the key to marsh life. The water is murky, clouded with microscopic bits of decayed matter. The water is not polluted; it is full of food. The decaying vegetation is comprised mostly of a soupy mixture of decomposed Spartina and bacteria called detritus. Detritus is a beginning link in the wetlands food chain, and without it the marsh would not survive.

Taking its nutrients from the sea, the Spartina grows prodigiously. Then, in the fall, the nutrients are returned to the sea as the lengthy decaying process begins. Detritus feeds countless marsh organisms. Some, like crab larva and small fish, take it directly from the water. Others, such as oysters and clams, siphon the mixture from the bottom and filter it into their digestive system.



Among the wildlife communities at Folly Creek are those of the tiny dragonfly (TOP LEFT), the periwinkle (MIDDLE LEFT) and the fiddler crab (RIGHT). An immature black-crowned night heron (BELOW LEFT) oversees his domain. BELOW: The Machipongo River near Quinby becomes a silhouette in the setting sun.



The small finfish, the larva, and the shellfish which consume the detritus will soon become meals for animals farther up the chain - larger fish, birds, fur-bearers - even man. The wetlands food chain is an exclusive and fragile cycle that must be unbroken in order to function.

Far away from here, in another world, people are talking about the marshes. Some are talking about draining them and filling them so homes and businesses can be built. Others are arguing that they should be preserved for the fish and the birds and the animals - and for humankind. It is a debate that the drainers and fillers are winning. In the last twenty years, more than six million acres of America's wetlands have been converted to industrial, residential and agricultural use.

But among the lean *Spartina*, the cycle goes on. Oblivious to the debate and the bulldozer, grey trout venture into the mouth of a gut to make a meal of silversides. Along the bank a yellow legs plunges its sharp beak into the mud and finds a meal. And back out in Folly Creek, a waterman hoists a wire-mesh crab pot from the creek bottom and dumps its scrambling contents in the bottom of his battered skow.



Personalities

by F. N. Satterlee



Jim D. Bowie
Commissioner, Ninth Congressional District

In Galax, Virginia, where Jim Bowie was born, raised and did his growing up, the senior Bowie was an achiever as his son would be, also. Early in life, Jim learned to love nature and wild animals and the outdoors. However, a heavy work schedule did not allow much freedom and it wasn't until a later time that he was really able to hunt and fish to any degree.

During two summer vacations while in high school, he hitchhiked around 41 of the United States, worked on a construction job in Colorado and in a paper mill in California.

At one point during his high school career, this young entrepreneur purchased a school bus and contracted to transport students to and from school. This involved making three runs before school, one during lunch hour and transporting three loads at the end of the school day.

Following graduation from high school, he attended Washington and Lee University in Lexington, and during his freshman year, married the former Katherine Reavis, who was also from Galax. Jim obtained a B. A. in Economics and, for a time, attended the Wharton School of Finance, which is part of the University of Pennsylvania's graduate school.

For six years he was employed by Burlington Industries and worked in Greensboro, North Carolina, New York City and in locations around Southside Virginia. At this point in his life, he made a critical decision which involved giving up a promising career in business to enter law school at Washington and Lee. This decision was additionally difficult for him as, by now, his family included two sons and a daughter.

The going was difficult as he not only had to finance his education, but support the family. This he did by bagging groceries, working for a bus company, selling sandwiches in the dormitories. . . and finally he made it, graduating Magna Cum Laude. Among other things, he was initiated in to the Order of The Coif, a legal scholastic fraternity and into Omicron Delta Kappa, a national leadership fraternity.

Armed with his Law Degree, Jim moved to Bristol, to join the law firm of Warren and Warren. That firm is now Warren, Bowie and Bressler.

Heavily involved in community and civic activities, he has been city chairman of his political party and a member of the district committee and of the state central committee of that party. He is past Chairman of the Bristol, Utilities Board, immediate past president of the Bristol Bar Association, a member of the Elks and Lions Clubs, and past Secretary of the Electoral Board, to say nothing of being active in the Chamber of Commerce, a member of the Bristol City Planning Commission and the Central Presbyterian Church in Bristol. His many achievements were recognized by the Bristol Junior Chamber of Commerce when, in 1969, they selected Jim Bowie as the Outstanding Young Man of The Year.

He enjoys the challenge of being involved in these activities, but he eagerly describes as one of the high points in his life an adventure which involved just him and his son, Bob. In 1971, when Bob was 17, Jim purchased two 500CC motorcycles which he and Bob took delivery of in Bellingham, Washington. From there the two Bowies proceeded to Vancouver, B.C. and across the length of Canada, camping along the way, to Niagara Falls and eventually arriving back in Bristol after some 3,300 miles of sheer beauty, but more importantly after sharing a father and son adventure par excellence.

In December of 1974 Governor Mills E. Godwin, Jr. appointed Jim to a six-year term as Commissioner for the Ninth Congressional District with the Game Commission. In this capacity he feels that he has the opportunity to perform a public service while at the same time being in contact with great people and the great outdoors and our natural resources.

Jim and Katherine make their home in Bristol Va., where their youngest son, Mike (16) lives with them. Their daughter Anita is married and lives in Maine, while Bob, now 22, is in the U. S. Navy and is stationed on Widby Island in the state of Washington.

Drumming Log

Edited by MEL WHITE



Harry F. Gilmer poses here with his fine 8-point buck taken on White-Top Mountain during the 1975 hunting season.

HARRISONBURG HAS FISH RODEO

By ERNEST FOLDI

Approximately 50 boys and girls, under 16 years of age, and several senior citizens, over 65 years of age, took part in the Annual Fishing Rodeo at Lake Shenandoah, sponsored by the Rockingham-Harrisonburg Chapter of the Izaak Walton League on Saturday, September 25, in observation of National Hunting and Fishing Day.

The weather was clear, mild, very pleasant, and the fish were cooperative. As soon as the whistle was blown at 9:30 a.m., to start the fishing for the largest and most fish caught by 11:30 a.m., the excited anglers cast baits of every description into the lake. Some caught fish, some didn't. With a lot of chatter among the contestants, all confessed that it had been fun right down to the hot dogs and soft drinks that ended the event and were served by the Harrisonburg Junior Women's Club.

Winners were Erick Cook of Harrisonburg who took the award for the first fish caught and for the most caught by 9 years olds and under. Roger Stover of McGaheysville caught the largest fish.

In the 10 to 15 year old group; Tom Orne of Penn Laird and Phil Landes of Harrisonburg tied for the first fish caught. Tom Orne also tied Dough Ornoff of Harrisonburg for the largest fish caught. Mike Jordan of Mt. Crawford caught the greatest number of fish.

Among the senior citizens, Elbert Smith of Linville had a field day by catching the first fish and the most fish. Clyde Keister of Singers Glen was the senior citizen catching the largest fish.

Other organizations taking part in the program was the Virginia Game Commission represented by Don Miller, Assistant Game Warden Supervisor; Ned Thornton, Supervising Game Biologist; and Game Manager, Gordon Souder. The Valley Bassmasters furnished the judges.

MARLIN HUNTER SAFETY CONTEST

The Marlin Firearms Company will conduct the highly successful Marlin Hunter Safety Contest again in 1976. The subject of the essay contest will be the same as last year: "What can the hunter, as an individual, do to help preserve the sport of hunting?"

Youngsters from 34 states who completed a hunter safety course submitted entries in the 1975 contest conducted by Marlin in cooperation with the North American Hunter Safety Coordinators Association. The contest received widespread applause and acceptance from educational leaders, sporting and outdoor groups, parents and others for focusing attention on the importance of the individual in the continuing effort to preserve the sport of hunting.

To be eligible, students must be currently enrolled in or have completed a State Hunter Safety Course since March 1, 1976. Contest entries must be submitted to instructors between March 1, 1976 and February 28, 1977. Instructors will return all completed essays to Marlin on or before March 10, 1977. All winners will be notified before April 30, 1977.

There will be a junior and senior winner selected in each participating state. Each state winner and their instructors will receive a gift certificate for \$50.00 worth of merchandise from L. L. Bean, Inc., one of the world's largest suppliers of outdoor sporting specialties. National winners will receive \$1000 savings bonds.

Entry forms are available from your local game warden or by writing to Captain James N. Kerrick, Safety Officer, Virginia Game Commission, Box 11104, Richmond, VA 23230.

the rock bass population reaches a certain level of abundance, the trout tend to disappear. This may be due to the inability of trout to compete with rock bass for food.

Since 1972, studies have been conducted to arrive at a proper annual stocking rate for Laurel Bed Lake, and to measure the carryover of trout. In order to identify the trout stocked each year, fish were marked on their back immediately behind their head and also on their belly also immediately behind the head. Trout were marked by freeze branding various letters and numerals on the fish.

Our inability to detect branded fish beyond June of their second year in the lake and the absence of large fish in the creel, indicate a low carryover of trout.

Since Laurel Bed Lake is being managed as a put-grow-and-take lake, this carryover is important. The put and grow concept involves the stocking of sub-catchable trout, usually 5-8 inches in length, permitting the trout to achieve some growth in the lake prior to being harvested. A large carryover of trout from year to year would reduce the number of trout needed to be stocked annually. It would also produce trophy-sized trout. Obviously trout that remain in the lake only about 18-months necessitate large annual introductions and do not produce many trophy sized fish.

In order to circumvent this problem, other strains of brook trout were investigated which were thought to have a longer life span. During December, 1975, a total of 12,500 brook trout of the Ohi strain were introduced into Laurel Bed Lake.

The Assinica Lake strain will be marked and stocked in the reservoir during the fall of 1976.

Should introductions of these species not prove beneficial, another road remains open. This would utilize crosses between the Assinica Lake strain and the domestic strain now being utilized in Virginia hatcheries.

Due to the length of time required for the Ohi and Assinica Lake strains to achieve a trophy size and to mature, and due to the demonstrated inability of brook trout to compete successfully with rock bass; it is imperative that Laurel Bed Lake be kept free of this species of fish as well as any other species of fish. If this cannot be done, the alternative is to periodically rennovate the lake and restock, probably with the domestic strain of brook trout.

In summary, the establishment of Laurel Bed Lake has increased fishing opportunities in Southwest Virginia by adding a unique lake brook trout fishery to the area. In addition to providing increased lake fishing opportunities on the Clinch Mountain Wildlife Management Area, it has greatly improved the water quality of the Tumbling Creek Fishery; also, resulting in increased fishing opportunities during the period of summer low flows.

THE

MERLIN

By JOHN W. TAYLOR
Edgewater, Maryland

In the mid-Atlantic states, late September is the time to see the merlin, or pigeon hawk. Having nested well to the north, mostly beyond the Canadian border, they are en route to their winter quarters south of the United States.

Go to the coast, to the beaches, dunes and marshes that lie astride the Eastern Shore peninsula. Go, if at all possible, to the barrier islands that fringe the mainland. There, above the bayberries, the dune grass and the scattered loblolly pines, look for this little falcon. If wind conditions are suitable (a fresh northwester is the best) you should be able to spot a half dozen during the course of a day.

Their flight is stronger, more direct, than that of the more common kestrel or sparrow hawk, and they sail less between strokes. The lack of any rufous-red on the merlin also helps distinguish it. The majority of those that pass early in the season are the streaked, brownish young of the year; later, you'll find a greater percentage of adults (the males a slaty-blue on the back and head).

Most of the birds you see will be beating a steady course to the south, at a moderate height. Occasionally, one will stoop at a group of feeding shorebirds, or veer to investigate a movement in the shrubbery. Sometimes you'll spot one resting, perhaps on an isolated pine stub far out in the marsh.

The merlin does not migrate along the Appalachian ridges, as do most of the raptors. It is, in fact, quite rare anywhere away from the coast, although there are several records for Richmond and reports from Amelia, Bedford and Nelson counties. Dr. Murray lists it as "scarce" in the Shenandoah National Park, but Dr. Wetmore, of the National Museum, omits it from his list of birds of the Park.

The charm of this diminutive falcon is felt by any who have studied it. Its fearless disposition and superb powers of flight have made it a favorite among falconers, who have found it the easiest of all hawks to train.

VIRGINIA WILDLIFE



Growing Up Outdoors

Edited by GAIL HACKMAN



Bureau of Land Management

BALD EAGLE ELECTED AS "ANIMAL OF THE YEAR"

Grown-ups aren't the only people holding elections this year.

More than 10,000 youngsters have just voted for the Bicentennial Animal of the Year in a nationwide referendum conducted by *Ranger Rick's Nature Magazine*.

Predictably, in a year of patriotic observances, the kids voted overwhelmingly for the American bald eagle, according to the magazine, published by the National Wildlife Federation.

Given a choice of half a dozen animals who were "important in the history of our country," the *Ranger Rick* readers (aged 5 into the teens) gave the eagle a flyaway victory over the mustang, or wild horse of the western plains. The white-tailed deer, common throughout the U. S., the North American bison, better known as the buffalo, the blue whale, the beaver, and a scattering of other species received "write-in" votes also. The final results stacked up like this:

- | | |
|------------|-------------------|
| 1. Eagle | 3,074 votes (31%) |
| 2. Mustang | 1,940 votes (19%) |
| 3. Deer | 1,763 votes (18%) |
| 4. Bison | 1,595 votes (16%) |

The 10,019 children participating in the *Ranger Rick* referendum cast 258 votes, or approximately 2% of

their ballots, for their own nominees for the honor, including the whale (728 votes), the beaver (661 votes), the cougar (69 votes), the raccoon (53 votes), the otter (29 votes) and the swan (9 votes).

All votes cast were "write-ins", since readers had to write cards or letters explaining their choices.

In their letters, many eagle advocates described the national bird as "beautiful" or "majestic." David Dykeman, and eight-year-old from Clinton, Connecticut, wrote that he was for the eagle because "it is our national album (sic)."

Carol Smith, 11, of Clearwater, Florida favored the buffalo so that the U.S. could have a "Bisontennial" year.



THAT'S A LOT OF HUNTER SAFETY!

During the 1975-76 school year, 2,360 students in Washington County's four high schools completed a course in hunter and firearm safety. The six-hour course which is recommended by the Virginia State Board of Education as a part of the

required health and physical education curriculum, was taught by officers of the Virginia Commission of Game and Inland Fisheries with the assistance of high school health and physical education teachers.

The coordinating instructor was Washington County area leader, Sergeant Roy Smith. Other game wardens involved were Joe Gillespie and Dennis Austin. The seventeen high school physical education teachers who assisted the wardens are all certified hunter safety instructors.

The purpose of the hunter and firearms safety. Basic gun handling in the home and in the field and the hunter's responsibility to himself, others in the field, to game and the land are the backbone of today's hunter and firearm safety course.

Surveys show that firearms are present in over 75% of the homes in the United States and that 70% of firearm deaths occur in the home. Statistics also reveal that almost 60% of gun casualties are caused by persons under the age of 21 years. Persons in this age group make up about 40% of all firearm accident victims.

According to game and school officials, student reaction to the hunter and firearm safety course was quite good. Students completing the course received a certificate of achievement, identification card, and shoulder patch.



Management Today Wildlife Tomorrow

By ROBERT H. GILES, JR.

*Department of Fisheries and Wildlife Sciences
VPI & SU, Blacksburg*

Wildlife research tumbles. It is a victim this year of a host of pressures and counter-pressures. These include (1) persistent lack of fundamental life history data on some of the game mammals and birds, (2) new interest in songbirds and non-game species management, (3) needs to continue on-going research, (4) inflation, (5) new research insights and methods, (6) new needs to bring wildlife into environmental impact evaluations, and (7) changing license sales and sportsmen behavior due to gasoline prices.

As at no other time in the past is wildlife research more needed. It is needed to reduce wildlife losses, to improve wildlife management practices, to reduce management costs, and to make necessary costs more efficient. When there are so few funds, those that exist must be made to go far.

Because of the changes, wildlife research today bears little relations to wildlife research of yore. Because of the changes it is important that the public understand what is going on, that they encourage public agency research. Organizations and individuals should seek ways to provide financial support for critical wildlife research at their universities. Industry grants, estate bequests, scholarships, and contributions from sportsmen field days can be invaluable additions to dynamic wildlife research programs.

Deciding. No longer will the mere interest of a researcher be the basis for research. Wildlifery will reserve 5 to 10% of their funds for such research. The rest will be highly planned. Computers will be used to look at all of the interconnections among soil, plants, climate, and animals and the factors that will provide the greatest control over the national wildlife system will be selected. This is called *sensitivity analysis*, figuring out the factors to which the wildlife system is most sensitive and then allocating research dollars to them.



Photo by: R. Miarachi

Research will be better planned and step-by-step studies will build to an end solution. Random studies that may be fit together "one of these days" will no longer suffice. In addition, some specially funded research will be done simultaneously in crash programs. There is not time for all wildlife research to be taken step by step. Examples of multiple and simultaneous research efforts include noise effects on wildlife, strip mining, off-shore oil drilling, endangered species, and the acid-rain thread.

The computer will become the critical factor in research planning. It will be the primary basis for research planning and the means for converting the results of research into realistic, rational decisions.

Production. Already used, the computer has aided us wildlife biologists in identifying two critical areas: reproductive physiology and habitat production.

Improved knowledge of wildlife reproduction is needed. This includes genetics, effects of chemicals and heavy metals on reproduction, techniques of deter-

mining reproductive success, and the control of reproduction in pest species (e.g. blackbirds and rats). Energy influences on reproduction are a high priority research need.

Energy from food is closely tied to the above. Habitat research will emphasize energy including effects of wind, how cover plants influence wind or reflect heat, and seasonal changes in the relations of energy available to the energy needed.

Major work will be done to develop "production functions" or curves that show how wildlife populations change over time in various types of forests — from year 1 to 100. These curves will be used to explain past wildlife situations as well as to predict future populations.

Prediction. Mathematics, statistics, operations research and computer science will play an increasing role. The major areas will be population estimation, population modeling and dynamics, location of facilities, law enforcement effectiveness, and agency operation and effectiveness. Work will be done to improve selection of agency employees, to evaluate their work, and to predict agency performance over time.

How human populations change will be critical in the future for they will determine license buyers, resource users, and even poachers. The importance of resources or the relative weights assigned to each will vary over time. These will be studied and new ways found to use them in improving decisions on how to spend funds for the wildlife resource.

Pesticides and Pollution. Pesticides are created faster than their effects on wildlife can be studied. We get behind faster. The answer to this situation is not to keep on plodding as in the past, complaining along the way. In fact, the situation is now impossible. *Inter-*

actions of pesticides and pollutions create new toxic "agents." Just 50 pesticides will require at least 50 man-years of study at \$50,000 per study. Just to do the study of the pairs of interactions (not to mention the three-way and greater interactions) requires 2450 studies! The answer lies in basic studies of physiology, anatomy, and biochemistry. Major advances will occur in studying enzyme chemistry and bioenergetics.

Land Use. Laws, rules, regulations, and policy play major roles in determining future wildlife populations. Forest taxation, for example, can have more effect on turkeys than any study of improved food patch mixtures.

Research in optimum arrangement of crops, in how to manage urbanizing watersheds, and how to locate facilities so they do not cause long term environmental impacts will be conspicuous in the future.

Control. Unfortunately, with man's expansion across the land, new prices on crops and trees, and new



conflicts at every turn, wildlife is as much a pest as prized. Research will be done on how to control animals associated with human diseases, crop damage, predators, and urban problems. Specific, sophisticated means of "ecological surgery" will be discovered that avoid the massive widespread control programs now used.

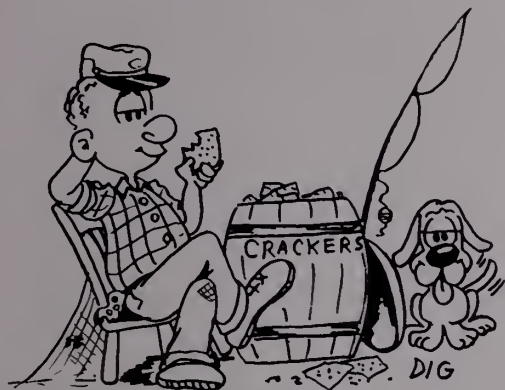
Inventory. Inventory is not research, but new ways of achieving inventories and storing information on state wildlife populations - butterflies, birds, salamander, mammals - as well as game animals will have to be done to achieve a viable concept of resource management.

Education. Improving wildlife education of all citizens is important but new studies will be conducted on the means by which adult decision makers can be educated.

IT APPEARS TO ME...

A Conglomeration of Comments, Gumshaw and Cogitation

& BY CURLY &



....A PERSON OUGHT TO HAVE ONE!

Teachers and Librarians. . . look into the recent offer by the Garden Club of America which, with proper identification, will enable you to obtain a free 44-page Environmental Education Packet. Single copies are free to the persons listed above and additional copies are available (to thee and maybe even me) for \$1.50 each. The address is The Garden Club of America, 598 Madison Ave., New York, New York 10022.

IF YOU ARE or if you know of a handicapped person interested in visiting Washington, D.C. there is a publication available which could be very useful. The 131-page *Access Washington* is a guide to downtown Washington which was prepared by the information Center For Handicapped Individuals. The publication was made possible by a Federal Grant and lists telephone numbers through which persons can obtain specialized information of interest to the handicapped. This information includes locations of special passenger loading zones, lowered drinking fountains, special rates and preferential seating etc. Free copies may be obtained by writing to Information for Handicapped Individuals, 1619 M St. N.W., Washington, D.C.

ATTENTION PROGRAM (Chairbodies) the Environmental Protection Agency has an on-going policy of making members of its staff available for speaking assignments. If you are interested in a speaker for programs oriented to the problems of pollution, solid waste disposal, the control of pesticides or anything oriented with the environment, contact the following: Office of Congressional and Public Affairs, U.S. Environmental Protection Agency, 6th and Walnut Streets, Philadelphia, Pa. 19106 or by telephone at 215/597-9826.

CHANCES ARE that you, your club or organization could be of invaluable service to some conservation organization located overseas. Over the past few years immigrating nations have been developing Nature Centers and now many are in need of some "handholding" and technical advice . . . by correspondence. If this sounds like something in which your group or you as an individual could participate contact: Conservation Correspondent, % Editor, Center, Nature Planning Division, National Audubon Society, 950 Third Ave., New York, New York 10022.

.... AND FOR YOUR BOOK SHELF

If you have ever dreamed of just "packin it up" and heading for the hills or woods there is a book that is a *must* either for your soul or your sanity or both. *Woodswoman* is an exquisite example of what one per person, Anne LaBastille, wanted to, attempted and did in just that regard. "Woodswoman" is 277 pages of the kind of stuff that is just likely to, whatever your gender, turn you green with envy, send you into an uncontrollable fit of day dreams or cause you to consider kicking your own posterior portions for not having done what she has. Warning!! the book is habit forming, magnificent and it is available from E.P. Dutton & Company, 201 Park Avenue S., New York, New York 10003 or from you local book store for the sum of \$10.95 (p.s. the cover photo and some of those inside were done by Richmonder David Allen Harvey).

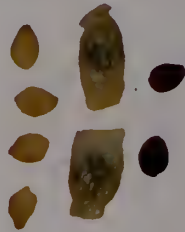
.... AND THEN

KEEP YOUR eyes peeled for an announcement which alerts you to any performance by a group called THE AGELESS WONDERS. This amazing group from College Hill Baptist Church in Lynchburg, Virginia consists of about 45 'youngsters' with an average age of 77 years who can and will gladden your heart, restore your faith in the human race, make you laugh and cry (sometimes simultaneously) and who, collectively and individually, are good for what ails yah. The Ageless Wonders will be performing at the E.C. Glass Highschool in Lynchburg, on November 11, 1976 beginning at 8 PM. . . RUN! don't walk to get a seat for that show.

WORLD OF WILDFLOWERS

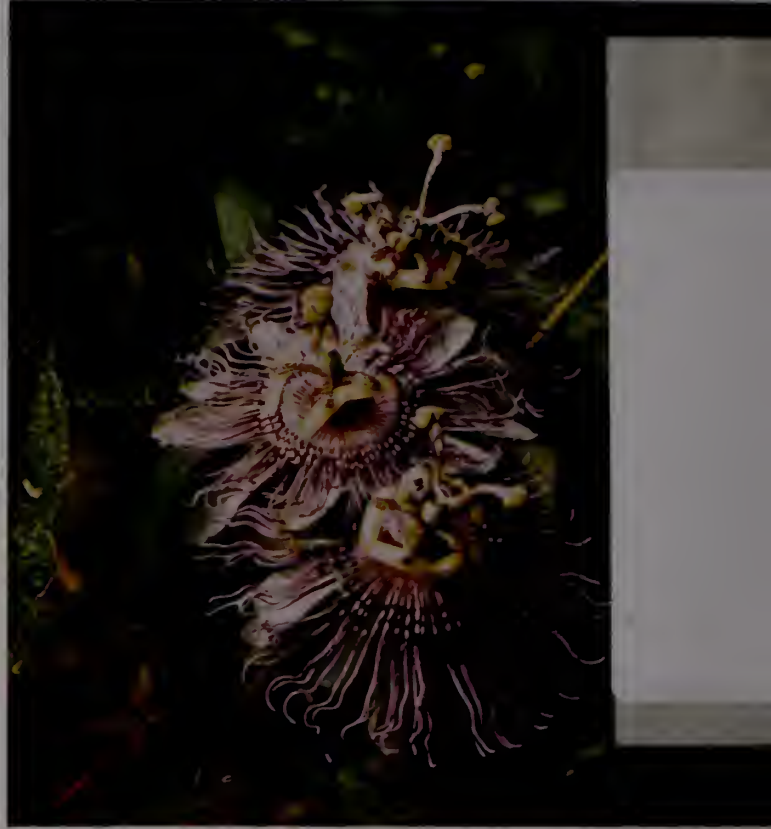


The Passion Flower blooms from early June to mid-November. The flower is almost three inches across (A). The fruit appears about mid-July and continues until after Christmas. The fruits are about the size of a lime or small lemon (C), and are reported to have the flavor of apricots.



The bloom function is rather specialized. It can be seen (A) that anthers are on a plane around the flower and positioned so as to rub across the bumble bee's back as it moves around the bloom, gathering nectar. They are also hinged at the center so as to maintain contact at all times. The bumble bee carries the pollen from flower to flower on his back fur like a knapsack.

Upon opening the fruit, the seeds appear arranged in ranks attached to the inside (D); each little brown dimpled seed individually packaged (D&E). Each seed is contained in a very thin bag which appears to have been heat sealed on one end and gathered and tied on the other.



The pod and seeds later dry out and the now light-tan seeds are contained in their closely-fitting protective covering (D&E). The Passion Flower may be grown easily from these seeds, or by rooting cuttings of well-matured shoots. The plant prefers direct sun but will tolerate some shade in dry places, preferably with underground moisture.

